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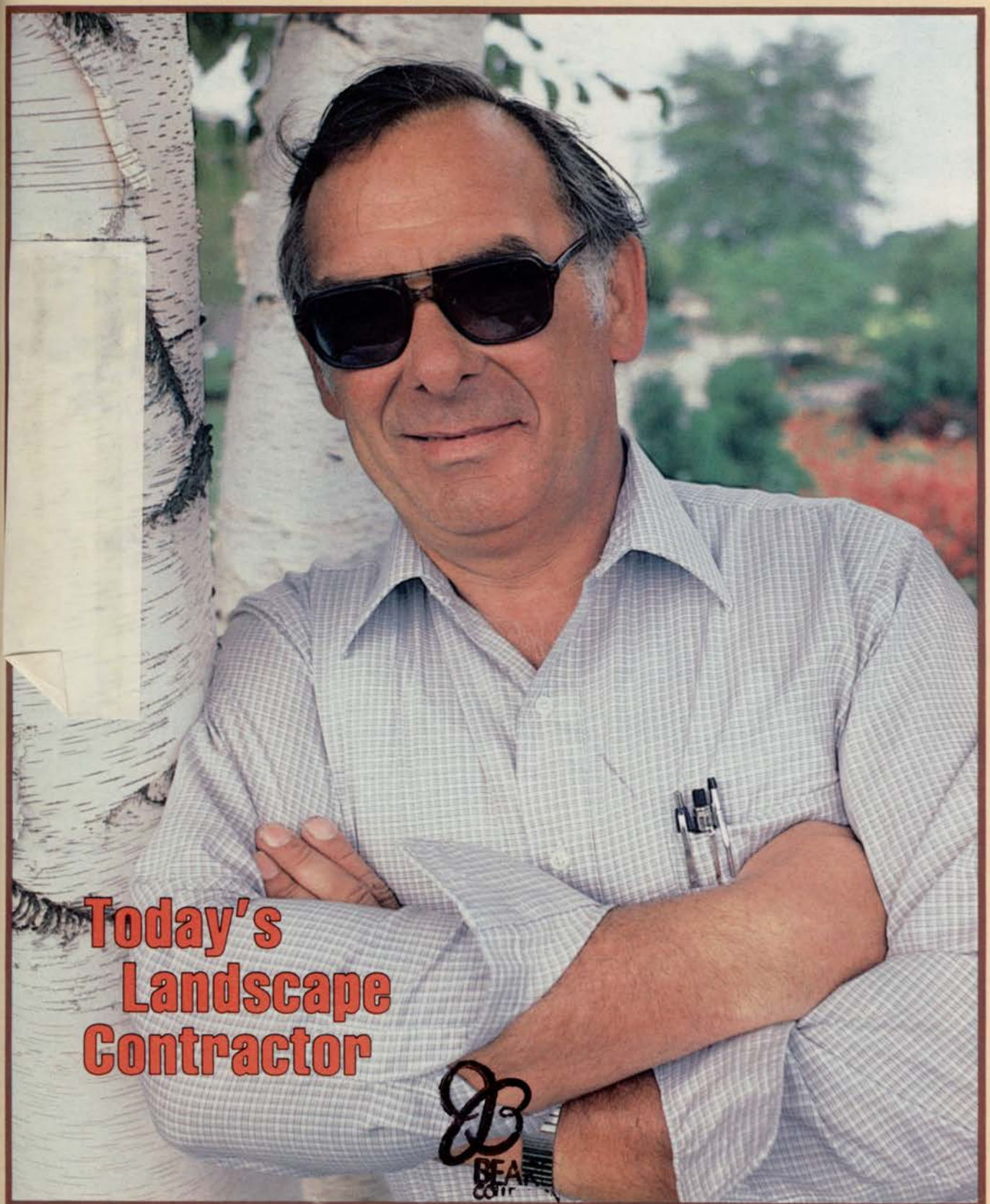
FEBRUARY 1985/$2.00

WEEDS TREES & TURF

The Magazine of Landscape and Golf Course Management Since 1962



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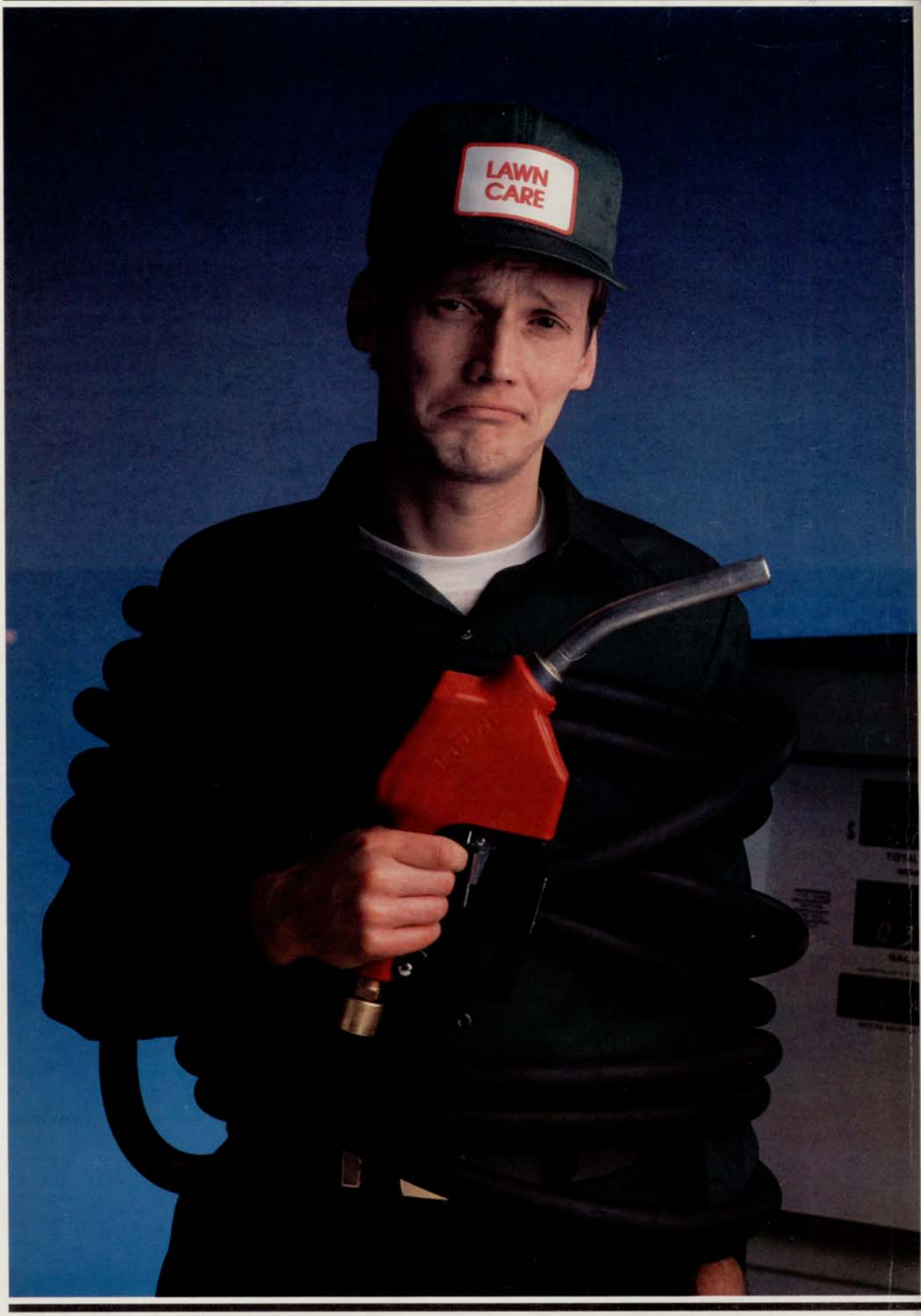
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FEBRUARY, 1985 VOLUME 24, NUMBER 2

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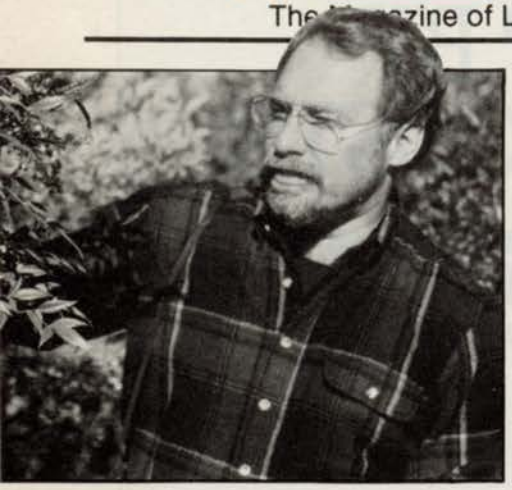

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Dr. J.C. Raulston believes in hands-on experience for his horticulture students. A well-stocked arboretum provides the ideal classroom.

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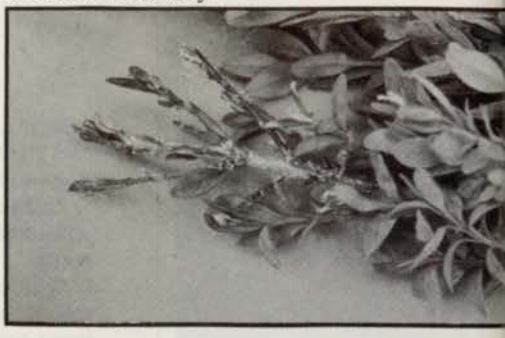
54 ORNAMENTAL DISEASE CONTROL GUIDE

Tree and ornamental disease control are discussed in the first of this year's popular Guides. A practical and information-packed reference source by Dr. C.C. Powell, Ohio State University and Don Blasingame, Mississippi State University.



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More landscaping professionals are realizing the benefits that one of the industry's oldest fertilizers can provide.

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750—18 PTO hp, 20 engine hp

850—22 PTO hp, 25 engine hp

950—27 PTO hp, 31 engine hp

1050—33 PTO hp, 37 engine hp

1250—40 PTO hp, 44 engine hp

1450—50 PTO hp, 55 engine hp

1650—60 PTO hp, 67 engine hp

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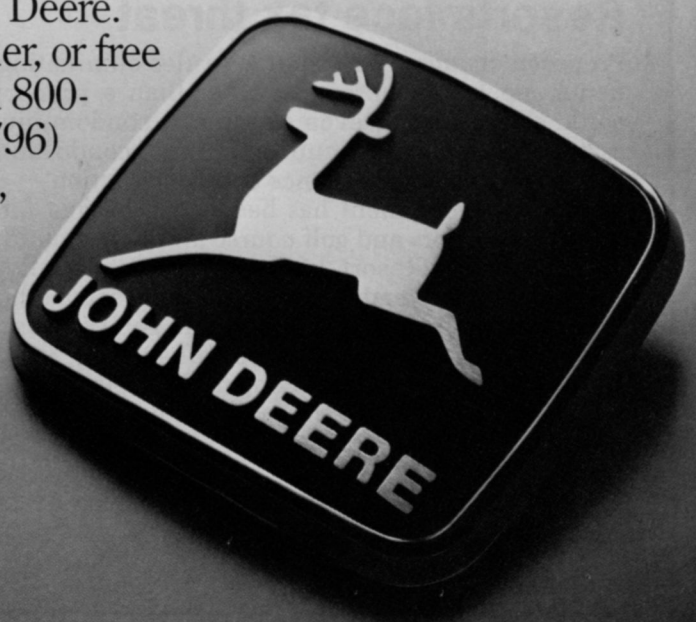

Nothing Runs Like a Deere®

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PBI/Gordon corrects Trimec story

In the December 1984 issue it was incorrectly stated that the expiration of the Trimec® patent is resulting in a commodity status for the proprietary post-emergent herbicide. It was further stated incorrectly that Trimec is really a loose term for a premixed formulation of 2,4-D, propionic acid, and dicamba that may now be obtained from sources other than PBI/Gordon Corp.

First and foremost, Trimec is not a loose term referring to a premixed formulation. Trimec is the registered trademark of PBI/Gordon Corp. for its proprietary herbicides and may not be used in any other context.

Although the patent has expired, it continues to be a proprietary product of PBI/Gordon whose formulation is a closely guarded trade secret. The name Trimec can not be used by any other company.

PBI/Gordon Vice President/Director of Research J. S. Skaptason offers the following clarification. "The Trimec patent number 3,284,186 was issued on the basis of the synergism that accrues when 2,4-D, MCPP and dicamba are mixed. In the beginning we noticed there could be inconsistencies in the activity of the product from batch to batch, especially if it was made by simply mixing amine products of the three herbicides. So, we launched a continuous research program to improve the efficiency."

Skaptason goes on to say a major step forward occurred when Dr. Roger Cahoy and Dr. Jan van Diepen succeeded in utilizing the characteristics of eutectic principles in formulating third generation Trimec complexes. "This chemistry affects the structure of droplets; and as proven by radio isotope studies, results in quicker penetration and more thorough translocation which result in better efficiency."

PBI/Gordon has not granted rights to any other manufacturer or formulator to produce or sell Trimec herbicides. Trimec herbicides can only be obtained from PBI/Gordon.

Resorts face tax threat

Proposed changes in Federal tax rules eliminating an interest deduction for any property other than a primary residence could slow down or even stop resort condominium development. That could mean cutbacks in both condo landscape work and golf course maintenance and construction.

Resort development has been a bright spot for both landscape contractors and golf course architects, builders, and superintendents. Resort landscapes are typically high-scale construction and maintenance to attract second home buyers.

Many resorts are centered around golf courses. The course makes the condominiums more valuable.

Loss of the interest deduction makes time sharing less attractive and may eliminate the marginal buyer.

WT&T

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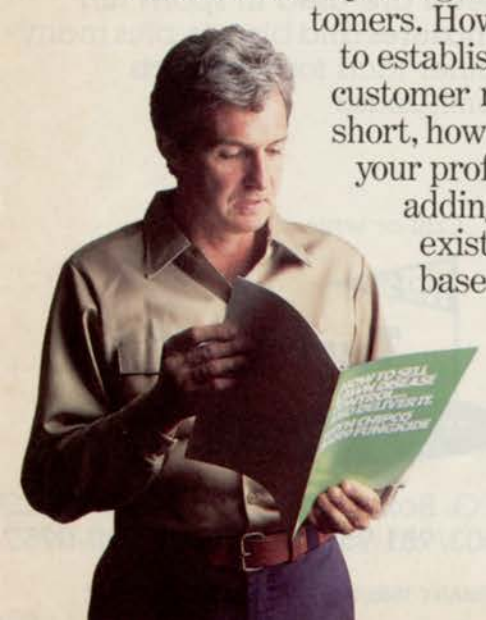
1 THE RIGHT STRATEGY.

Every year, more lawncare companies discover new profits in turf disease control. If yours isn't one of them, we'd like to show you the way by sending you our free CHIPCO® 26019 fungicide *Healthy Business Package.*

It includes lots of valuable information and materials to help you turn lawn diseases into profits... beginning with strategy.

We'll explain how effective disease control can give you a competitive edge. How it can build your reputation as a quality-oriented company. How it can protect the business you already have... and help bring in more customers. How it can be used to establish a long-term customer relationship. In short, how it can improve your profitability by adding value to your existing customer base.



2 THE RIGHT TACTICS.

Coming up with an effective disease control sales strategy is one thing. Carrying it out is something else. Our *Healthy Business Package* shows you how.

It includes not only advice on how to communicate with customers and prospects, but materials you can use. Materials for newspaper, direct mail and bill stuffers. Doorknob hangers. In-home sales presentations.

One reason lawn disease treatment is an excellent business opportunity is that many homeowners don't even know that turf diseases exist. If you make them aware of the problem—and offer the solution—in your advertising, promotions and sales calls, you'll capture more than your share of this growing market. We can help.

OU NEED TO
D IN THE
ROL BUSINESS.

3 THE RIGHT TRAINING.

Before you start offering disease control to your customers, you have to be sure your employees know how to handle the job.

We'll take care of that, too. In your *Healthy Business Package*, you'll find training aids you can use to teach your workers how to spot, identify and treat all the major turf diseases they're likely to encounter.

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4 THE RIGHT FUNGICIDE.

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It controls the major turf diseases, including Leaf Spot, Red Thread Dollar Spot, Fusarium Blight and Brown Patch. So it's the only fungicide you need.

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It's easy to use. And toxicity is low, so you and your customers get added peace of mind.

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RHÔNE POULENC

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Please read label carefully and use only as directed.

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Merger Mania: Landscape Suppliers Involved

The big news this winter has been the number of mergers, many of which could impact the turf and landscape market.

The most recent negotiations were between Diamond Shamrock and Occidental Petroleum. The merger, which was cancelled, would have combined the oil and gas reserves of the two large companies. Diamond Shamrock is partner with Showa Denko, a Japanese chemical company, in SDS Biotech, manufacturer of Dacthal and Daconil.

In other recent negotiations, NOR-AM Chemical Company, Wilmington, DE, has made an offer to purchase the Plant Health Business of Upjohn, according to Leo Ekins, president of NOR-AM and David Phillipson, vice president and general manager, Agricultural Division, of the Upjohn Company, Kalamazoo, MI.

Included in the transaction are the Actidione line of fungicides for turfgrass, lawns, and ornamentals; Botran, fungicide for edible and ornamental crops; Enide, preemergence herbicide for tobacco, edible and ornamental crops; and BAAM, Upjohn's brand of amitraz, a miticide/insecticide for pears and other crops.

NOR-AM manufactures and sells a wide variety of agrochemicals and specialty chemical products, including lines in the turf and ornamental areas. The Upjohn products will reportedly be marketed and distributed in accordance with NOR-AM's sales and marketing policies.

A third merger discussed has been an unsolicited offer by Chicago Pacific Corporation to pay $43 a share in cash for Textron Inc. But, the offer was not received enthusiastically in the Textron board room. Textron is the multifaceted industrial concern based in Rhode Island. Jacobsen is one of its divisions.

Textron Chairman Robert P. Straetz said his company would be "better served" if it remained independent. Textron responded to Chicago Pacific's offer by retaining a New York law firm which has been successful in designing aggressive defense tactics to potential take-overs.

Chicago Pacific is a new company, the successor to the Chicago, Rock Island & Pacific Railroad Company which filed for bankruptcy protection in 1975 and was operated by a court-appointed trustee the following four years.

Mergers previously reported in *Weeds Trees & Turf* are the pending combination of International Harvester's Agricultural Equipment Group and Tennaco, parent of J.I. Case, and Chevron's purchase of Gulf Oil. Both instances have possible repercussions. Many IH and Case dealerships are being combined, leaving existing dealerships for other companies to exploit. Chevron is selling assets to pay for its leveraged buyout of Gulf. Inside word is that Chevron, parent of Ortho, has plans for the exterior and interior landscape industries. Also, since Ortho has shelf position at garden centers equal or greater than Scott or Burpee, it may invest in expanding its garden center and discount store position.

Changes at Velsicol and Estech are also possible, with negotiations and financing arrangements changing weekly. Velsicol has new products for turf it is preparing to launch, as does Estech, which has a plastic-coated urea called Meister ready for market.

Keep reading WT&T (or the *Wall Street Journal*) for up-to-date information.

New ASLA president

Robert H. Mortensen is sworn in as president of the American Society of Landscape Architects by past president Darwina L. Neal at the organization's annual meeting recently in Phoenix. Mortensen will serve a one-year term.

INDUSTRY

Landfill woes threaten Long Island industries

Finding places to dump landscape debris has long since passed the headache stage in Long Island, NY, prominent Green Industry spokesmen there tell *Weeds Trees & Turf*.

It's a problem that's not likely to be resolved quickly or inexpensively these same spokesmen fear.

With local associations eyeing their war chests and threatening to initiate political action committees, the problem could easily spill into the political arena.

The heart of the problem is the state-mandated closing of all landfills in densely populated Nassau and Suffolk Counties, and the inability of Green Industry leaders and government officials to hammer out suitable alternatives for the disposal of tons of landscape debris generated by customers of landscape and lawn businesses.

Although the sheer volume of garbage in general (the New York City skyline miles away is visible from the tops of some landfills) is part of the problem, government agencies are concerned about the quality of ground water supplies since Long Island depends almost exclusively upon well water.

The state has given the 13 communities in the two counties until 1990 to close their landfills. Some have already been closed.

"We have been aware of this problem for several years but the landfill situation is in the critical state right now," Jon Hickey, a member and past president of the Long Island Arborists Association, says. Efforts to convince individual communities to set aside areas for the disposal of lawn and garden debris, in effect community compost areas, have so far made little headway, he reports.

"We know that with every landfill there could be an area set aside that can be used by our industry and we could help police it," he says. "We can cooperate with the various government agencies if we can find some middle ground."

continued on page 18

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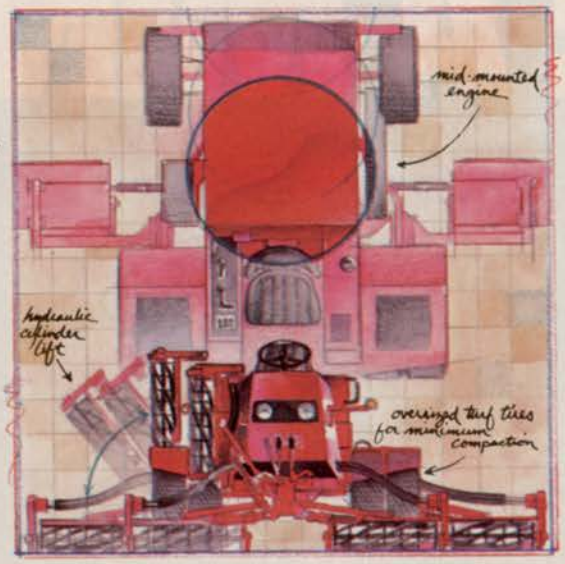

While you're putting it through its paces, the Reelmaster 350-D handles well. No matter what the terrain. Its mid-mounted engine and wide stance create a low center of gravity. This, combined with even weight distribution on six oversized 4-ply tires, keeps you cutting even on steep hillsides. And allows you to transport safely and easily at speeds up to 15 mph.

In addition to all this, the Reelmaster 350-D gives you rugged Toro durability to keep you cutting years longer.

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Roundup
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Alternatives could be costly to landscape and lawn care concerns—and their customers. Household garbage in some areas of Long Island is already reportedly being trucked 100 miles to Goshen, NY, at a cost of $50 a ton. Long Island Green Industry businessmen are wondering how much of an additional charge, a so-called disposal fee, their customers are willing to pay to get rid of the clippings, leaves, and branches arising from the care of their properties.

"It's really a complex problem about how to charge for this," says Andrew Hanlon, president of the Nassau Chapter of the Nassau/Suffolk Landscape Gardeners Association. "We've suggested that our materials shouldn't be mixed in with garbage but be composted. Our landfill was 181 acres and now it's down to 50. When it's filled up where are we going to put it. That's the problem."

Solutions, including the reduction of the amount of fertilizers on lawns to reduce clippings, aren't likely to come easily or cheaply.

PESTICIDES

Ohio pesticide groups unite

The Ohio Pesticide Task Force and the Society to Educate Pesticide Safety (STEPS) will merge and become the Ohio Pesticide Applicators for Responsible Regulation, OPARR.

This new group grows out of concerns in various areas of Ohio over pesticide legislation, like that in Lyndhurst, OH, where the Cleveland suburb is trying to pass legislation on prenotification of pesticide spraying by lawn care companies.

At press time, plans were calling for Jim Betts, lobbyist for the Ohio Nurserymen's Association, to act as executive director. Coordinators are Betts, Lonnie Alonzo, Dr. Phil Larsen and Lauren Lanphear.

"The first priority for the OPARR is to get preemptive legislation introduced on a statewide level," notes Lanphear of Forest City Tree Protection, Cleveland. "In that respect, the situation in Lyndhurst helped, because now there's an ordinance on the books. We plan on asking the Ohio Attorney General for an opinion on the issue."

The Ohio Pesticide Task Force was created one year ago as a protective organization hoping to cut off anti-

Coming Next Month The
WEED CONTROL GUIDE

New Du Pont Landscape Fabric. It lets water through to give you healthier beds with less work.

New DuPont Landscape Fabric lets water pass through, reduces wash-away of mulch while it impedes weed growth. So you get healthier, more attractive plant beds with less maintenance work and cost.

Everything you apply for bed care gets to plant roots in the amount you want, where you want it. Water, fertilizers, herbicides and pesticides seep down through this chemically inert fabric to nourish and protect every plant in your bed.

DuPont Landscape fabric is easy to put down with scissors or knife. It comes in four roll sizes from 3- to 12-feet wide.

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Slash labor costs with the DUCKBILL® Tree Anchoring System

Cross section of earth

One man can anchor a tree with 3 Duckbills in minutes

Robert L. Swain, vice president of the Dawson Corporation, landscape contractors in Windsor, NJ, said, "We used your Duckbill Earth Anchors to hold a large number of trees in place after planting. This cut the labor time by such a drastic margin that we saved a week's time with a four man crew!"

Landscape architects nationwide are specifying Duckbills on more and more projects because Duckbills are the easiest and fastest, the strongest and the safest because there are no rigid rods or hard steel loops left above ground to injure people or pets or damage motorized equipment. Only a small pliable loop remains above ground.

Duckbills are used to anchor trees, sheds, fences, park benches, tables, many other things that can be stolen or blown away. There are four sizes, from 250 to 5,000 lbs. holding capacity, to meet all anchoring needs.

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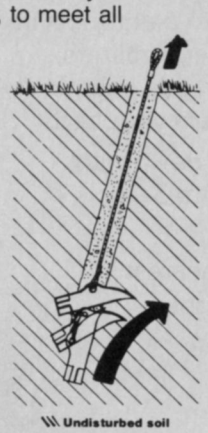

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pesticide legislation before it got a footing.

RESEARCH

Tru-Green readying turf research site

Tru-Green, Lansing, MI, is expanding property it had used for several years for truck buildup into a new turf research and development facility. The site in Fremont, IN, just below the Michigan state line, is to include about 3½ acres of turfgrass plots.

"We will use it to evaluate materials which we use for our residential and commericial applications," says Al Turgeon of Tru-Green. Eventually the Tru-Green Turf Research and Development Facility could be used to study ornamentals, equipment, and be used for training programs as well, Turgeon says.

The facility should be ready for turfgrass research sometime this spring.

ASSOCIATION

PLCAA regional seminar date set

The Professional Lawn Care Association of America's 2nd annual Florida Regional Seminar is slated for Feb. 14 at the Orlando Hilton Inn/Florida Center.

The all-day program is applicator-oriented covering such topics as turfgrass entomology, pesticide handling and safety, a review of state laws, calibration of spreaders and sprayers, and turfgrass identification.

For further information contact Jim Brooks, executive director of PLCAA, 1225 Johnson Ferry Road N.E., Suite B 220, Marietta, GA 30067. (404) 977-5222.

EDUCATION

Davey training program offered

Davey Environmental Services is offering a two-week Tree Care/Urban Forestry Foreman Training Program to help urban foresters manage their street and park trees. The instruction is designed for municipal, state, federal and institutional foremen, top trimmers, and supervisory employees.

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Kent, OH, and the company's western regional office in Livermore, CA.

For more information call or write Davey Environmental Services, 117 S. Water St., Kent, OH 44240. 1-800-227-1735.

PEOPLE

Names in the news

Patrick "PJ" Lenihan, 34, is the new corporate vice president of Lawn Medic Inc., Rochester, NY. Lenihan, president of the North Carolina Turfgrass Council, had headed Lawn Medic of the Triad, affiliate subsidiary, the largest lawn care company in North Carolina. Among his first duties as corporate vice president will be overseeing the transfer and restructuring of the company's employee training programs to North Carolina from New York. He is a University of Virginia graduate.

Word comes that Lebanon Chemical, Lebanon, PA, has three new salesmen. They are **Andrew Cinque,** New York, NY, **Greg Senst,** Janesville, WI, and **James Walsh,** Blue Island, IL.

The Ohio Turf Foundation honored Lesco chairman and co-founder **Jim FitzGibbon** with its "Man of the Year" designation this past December. Lesco is based in Rocky River, OH.

Other "Man of the Year" honor winners were announced on the West Coast recently. **Jerry Lambert,** Lambert Landscapes, Sonoma, CA, earned the award from the regular membership of the California Landscape Contractors Association (CLCA), while **Robert Crudup, Jr.,** nursery manager for Valley Crest Tree, Sunol, was the CLCA "Man of the Year" among associate members for 1984.

In related news, **John France,** Cal-Turf, is the 1985 president of the associate member organization of the CLCA. **Alex Rosa,** Cal-Turf, Brea, is the organization's southern representative, **Bobbi Coggins,** Tree Haven, Sacramento, its northern rep, and **Rick LaMantain,** Valley Crest Tree, Sunol, the secretary. The associate member category is comprised of individuals and firms who are suppliers of products and services to contractors.

Robert H. Mortensen, of Mortensen Associates of Falls Church, VA, and Toledo, OH, follows **Darwina L. Neal** as president of the American Society of Landscape Architects (ASLA). Other national ASLA officers installed this winter include: **John L. Wacker,** Weston, MA, president-elect; **Cheryl L. Barton,** Nashville, TN,

Toro to import low-cost mowers

Toro Company President Kendrick Melrose has announced an agreement with Fielsa S.A., its distributor in Venezuela and Colombia, to manufacture homeowner lawn mowers Toro dealers can sell in the U.S. for less than $300. The Toro Company, having returned to profitability, wants to capture part of the low-end mower market.

Ransomes switch good for Texas Co.

When Ransomes bought Bobcat from Wisconsin Marine a few years ago, a big problem arose. Distributors, like Goldthwaithe's in Texas, found themselves carrying competing product lines. Ransomes had to locate new distributors.

They found Chemical & Turf Specialty Co., Inc. in Garland, TX, to take over Goldthwaithe's territory. The smile on Chemical & Turf's Sales Manager Gary McElvaney's face and the crowd at his booth during the Texas Turf Conference in December indicates the new relationship is a profitable one.

Chemical & Turf was primarily a chemical distributor until taking on Ransomes. Equipment and chemicals go together well McElvaney said. Now the company carries Turf-Vac,, Myers, and other equipment lines.

DeBra stresses service over price

David DeBra, vice president of DeBra Turf and Industrial Equipment Co., Hollywood, FL, stresses service and parts over price to his customers.

DeBra says a potential buyer is wise to investigate the company's service staff and facilities. "Without trained service professionals, a service contract or guarantee from an equipment firm is not worth much," he points out.

Availability of parts is critical because down time can be disastrously expensive. DeBra says, "If parts are not routinely kept in inventory, it should be known how long the delivery times average. It is also important that a firm can get the right parts and not just make-shift ones."

The final guideline, according to DeBra, is to look for an established firm. "A firm that has been around for a while will have the most to offer," he says. "Its relationship with manufacturers and parts distributors will be better and its staff is usually more experienced."

New Jersey honors Des Champs

Paul Des Champs, president of Storr Tractor, was honored by the New Jersey Turfgrass Foundation as 1984 Man-of-the-Year during the New Jersey Turf Expo held in Atlantic City in December. Des Champs has been a strong supporter of the Foundation for nearly two decades.

UPDATE

Lawn spray law vetoed by mayor

A Lyndhurst, OH, resident said it best while voicing his support of a veto by that city's mayor of a council ordinance regulating lawn care companies, "People are also allergic to dust and dirt. If we have a law for every allergy we'd regulate ourselves out of existence."

The Lyndhurst ordinance, and one in Wauconda, IL, are being watched closely by experts as local governments and the justice system set precedents regarding pesticide applicators. The Lyndhurst ordinance would have required lawn care companies to register with the city each year and disclose the generic names of chemicals they use. The companies would also have to notify individuals who pay $5 to be on a list when they treat an adjacent property. The council voted 4 to 3 in favor of the law in December. The mayor was silent about the law until he surprised council with a veto in January. The council did not have the votes to override the veto.

The ordinance was directed only at lawn care companies. Chemlawn and other companies called the ordinance discrimimnatory.

The Waucanda law, which is being challenged by the Pesticide Public Policy Foundation(3PF), requires applicators to post signs for 72 hours after treatment. 3PF contends the city of Waucanda does not have jurisdiction over pesticide applicators since that is covered by state and Federal law. It also questions why such a law does not apply to homeowners who treat their lawns.

USDA wants more say with EPA

The U.S. Department of Agriculture wants to turn back the clock on pesticide legislation to when it had a bigger say in pesticide policy making. USDA has asked for changes in EPA's rule review process to require EPA to consult USDA before decisions are finalized. Current laws only provide USDA with the right to comment on agricultural impact of EPA's proposed rules.

In the early 70's USDA and the Department of Interior lost authority over pesticide regulation when EPA was created to take over. Now USDA wants some of its old power back.

Arborists block hearing rule

The lobbying ability of the National Arborist Association was successfully tested recently when it convinced Congress to stop development of The Hearing Conservation Amendment. Complying with the amendment would have cost arborists more than $2 million according to NAA Executive Vice President Robert Felix.

Congress said the intent of the amendment is currently satisfied under OSHA's existing charter to protect workers from hearing damage at work.

vice president; and Randall B. Fitzgerald, Denver, CO, vice president.

The ASLA honored author and educator **Ian L. McHarg** with the 1984 ASLA Medal, the organization's highest award. McHarg is a professor at the University of Pennsylvania. And **Raymond L. Freeman,** Chevy Chase, MD, picked up the 1984 ASLA President's Medal.

Tom Presney, named outstanding park and recreation student in Wisconsin in 1978, is the new superintendent of parks in the city of Janesville, WI. Presney, 27, served as a park ranger at Grand Teton and Yellowstone and park manager at Blackhawk Lake Park, Dodgeville, WI, after graduating from the University of Wisconsin-Stevens Point.

Oregon State University senior **Forrest Goodling,** Portland, recently received a $500 turf scholarship from TUCO division of the Upjohn Company. Goodling is studying turf management.

And some sad news in the Green Industry.

Prominent golf course architect Ellis Maples died Dec. 7. He was 75. He designed more than 70 golf courses in the Southeast and served as president of the American Society of Golf Course Architects in 1974. He was a life member of the PGA and a member of the GCSAA.

Elmer J. Merz, former executive secretary of the California Association of Nurserymen (CAN), died Dec. 5. He was 85. He began as CAN's executive secretary in 1948 and served in that post 21 years. After 10 years as legislative consultant for the CAN he retired in 1979 to celebrate his 80th birthday.

Jacklin honored

Doyle Jacklin, right, marketing manager of Jacklin Seed Company, receives Idaho's highest award from Governor John Evans. Jacklin Seed of Post Falls, ID, received the award for its contributions to the State of Idaho and the national economy through export sales of Idaho products and services.

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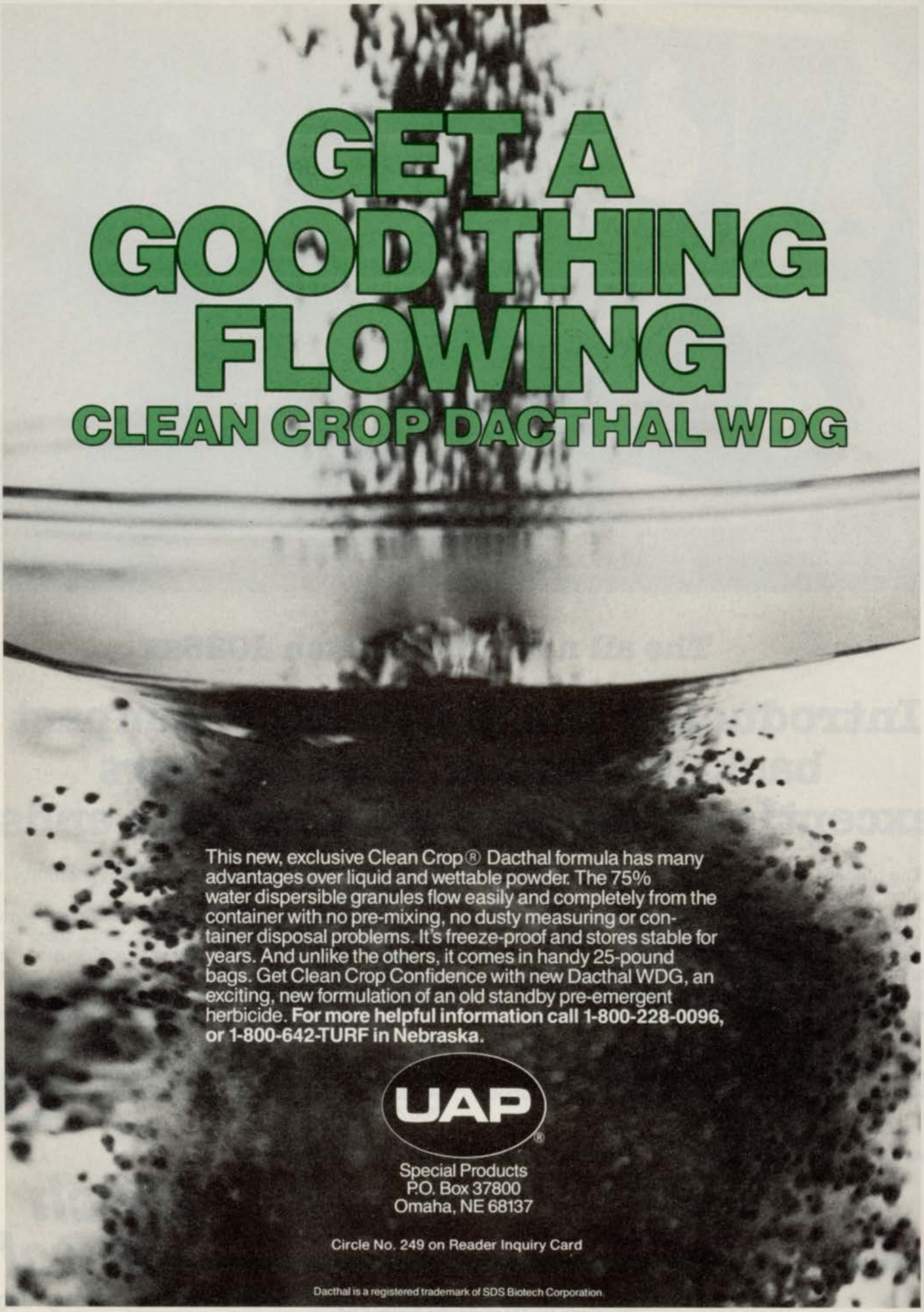

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North Carolina State University professor and students build teaching arboretum on eight ugly acres, now beautiful and productive.

J. C. Raulston's Living Classroom

by Sandra Ladendorf

It takes more than books and classroom lectures to mold a student into both a skilled plantsperson and practical businessperson in J.C. Raulston's mind. When North Carolina State University was reevaluating all its curricula in the mid-1970's, the professor of horticulture plotted a course for better preparation of graduates.

Today, the arboretum at North Carolina State University serves as a laboratory for most of the university's students in landscape horticulture, parks and recreation, forestry, ornamental horticulture, landscape architecture and the school of design. "Our students need to see tree trunks, flowers and berries—to hold a leaf, twig, or flower," says Dr. J.C. Raulston, professor of horticulture at NCSU. So, during the past six years, Raulston accumulated more than 4000 different species and cultivars in the arboretum for students to plant, prune, study and propagate.

When the department of horticulture at State was going through re-evaluation, a committee recognized that while the university was always strong in the areas of flowers and vegetables, the department was weak in ornamentals. A commitment was made to upgrade the curriculum in ornamentals both by increasing the faculty (it has grown from 3 to 11 since 1975) and by improving resources, including an arboretum.

The university provided Raulston with eight acres of land, part of the existing research farm, and tool support—, no

Perennial bed at planting (left) *one year later (below). Students do most of the planting and maintenance.*

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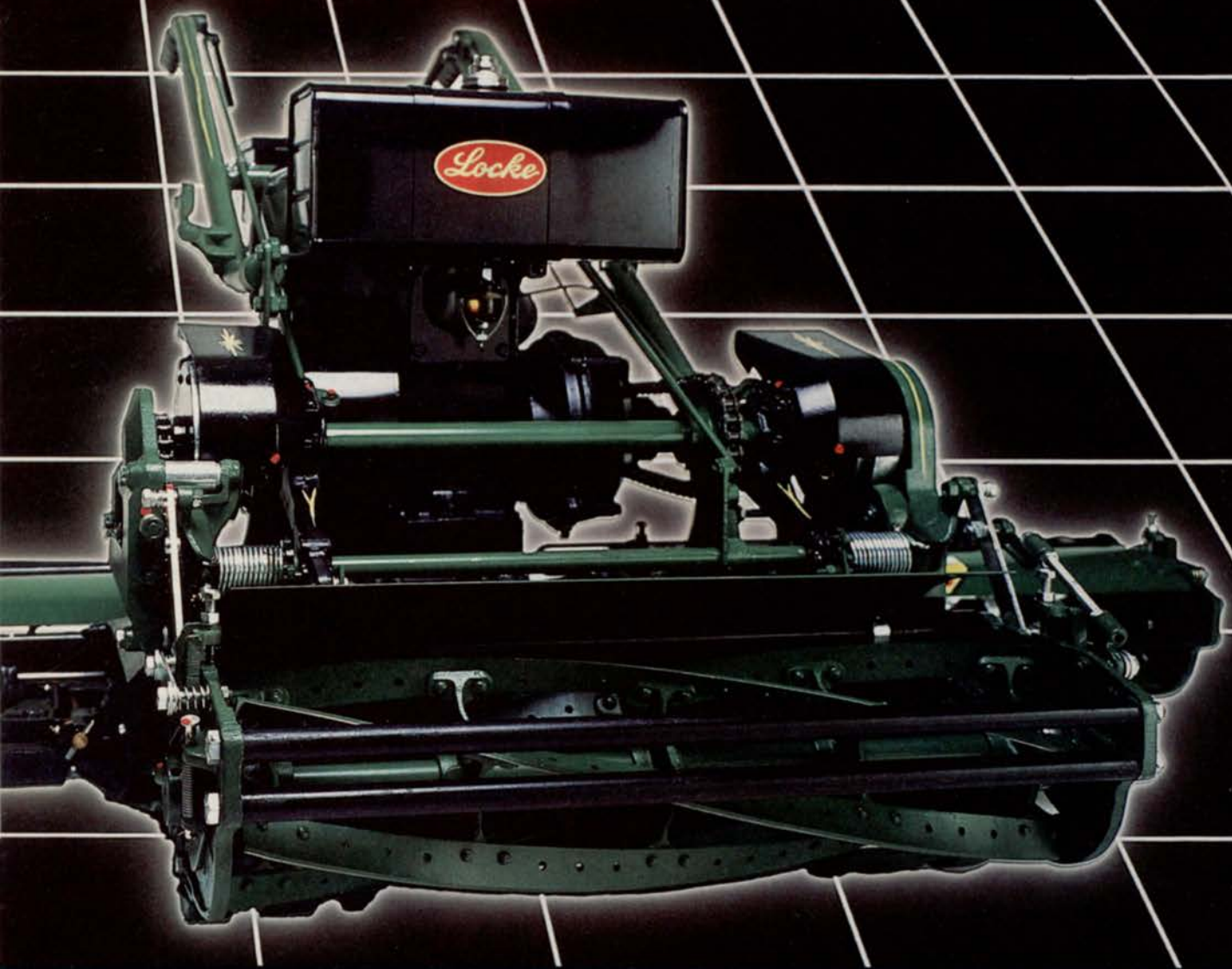

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money per se. "It was not at all a site one would choose," Raulston says. "It was flat land with heavy clay soil, and there were ugly views in all directions." But the site was available and had the virtue of being beside a road and therefore easily accessible to the public.

J. C. Raulston, *admiring Nandina domestica cv. Alba.*

Lean operation

The NCSU arboretum has been a shoestring operation from the beginning—but it is amazing what a talented man can do with a shoestring. With a little money and a lot of creative student labor, Raulston has developed both an active research center and an interesting, attractive community resource.

Today a visitor enters the arboretum through an inviting entrance center, designed and built by Will Hooker when he was a graduate student (he is now teaching at NCSU). The surrounding ugly industrial sites have been screened from view by vines on the chain link fence and plantings of quick growing trees like

Each year, students propagate and distribute thousands of plants to nurserymen to encourage them to try new cultivars.

'Nellie Stevens' holly, Tjuga 'Emerald', and Leyland cypress.

Eight different sets of attractive benches, designed and built by Doug Bethune for his Masters in Landscape Architecture project, are situated throughout the arboretum. Tracy Traer, instructor in landscape horticulture, works with her class each year to develop a model landscape garden. Three are completed and two are in construction this year. When seven have been completed, this program will recycle. The first garden will be torn out and a new one built in its place.

Raulston is skilled in both recruiting volunteers and donations for the arboretum. He has established a Friends of the Arboretum group which provides about $2000 support each year. Local arborist Archie Beal frequently donates use of his Big John 88 tree transplanting machine for large projects, the most exciting of which was the rescue of a 14 foot, 65-year-old, cut-leaf Japanese maple which one class, with Beal's help, dug and successfully transplanted to the arboretum.

The 250-foot perennial bed and the lathhouse are completely managed by volunteers Edith Eddleman and M.K. Ramm. With volunteers, as with students, Raulston gives them a project and then turns them loose, with little supervision, to make that project their own.

Following the original design of the entire arboretum, created by Charlotte landscape architect Fielding Scarborough while he was earning his MLA, student classes have laid out the large curving beds, killed the grass with Roundup, and then planted directly into the clay soil.

Learning by observation

According to Raulston, current research indicates that landscape plantings will do best without any backfill, contrary to traditional practices. He says, "I tell my students the larger the plant is going to become and the more permanent it is, the less useful backfill will be."

All the plantings, like the group of 20 cultivars of nandinas or the collection of 110 magnolia species and hybrids, are heavily mulched and then the beds are kept weed-free with herbicides and occasional hand weeding....the economically feasible way for this garden to operate, since there is only one full-time maintenence person year-round, helped by another worker for the four summer months. Six different pre-emergence herbicides are used for three major applications, in winter, late spring and late summer.

Raulston has created a special environment for the wide variety of plants like rhododendrons and heathers that will not tolerate N.C. native soils, particularly the heavy clay. It is a large lathhouse with beds with bark—no fancy additives, no complicated soil mixes, just plain bark. He has found that almost all plants thrive in this house.

Among the 1500 species in the lathhouse, *Cornus canadensis*, frequently described as impossible in N.C., is a rampant ground cover. Raulston did note that because the shredded bark drains so quickly, it does require frequent waterings.

Students learn which plants require raised beds for successful Carolina culture. They are also exposed to a number of interesting, rare or unusual plants that are not currently available for landscape use in the Carolinas.

Promoter of new plants

Raulston works closely with the landscape architects and nurserymen of the state. He sees one function of the arboretum as being a testing place for cultivars likely to do well in N.C.

Each year, students propagate and distribute thousands of plants to nurserymen to encourage them to try new cultivars. He also urges nurserymen to come to the arboretum for any cuttings they might want to try. Every time he speaks to landscape designers, he poses them the challenge of using just one new or rare plant in their next designs.

He also encourages them to "think small" and not necessarily always plant large specimens. In his experience, the landscape trade always wants "big" things and usually buys a few very expensive plants. "I'd like to see landscapers use a few of those large plants for a framework, but then add a number of smaller, interesting plants." He points out that you can take a one-quart seedling dogwood and plant it side-by-side with a seven foot balled-and-burlapped one and five years later, the seedling tree will be larger.

Raulston also uses the arboretum to make landscape architects and nurserymen aware of innovations in standard woody plants. Dogwoods are a case in point. The ordinary white dogwood, *Cornus florida*, is a native N.C. plant, the common understory in the deciduous oak and hickory woodlands. It thrives in N.C. Probably every nursery in the state carries *C. florida* and a number of them offer a pink or red variety. However, at the arboretum, Raulston has acquired a number of different cultivars of *C. florida*, including a weeping, a dwarf and a double form—all of which should do very well in N.C. plantings.

continued on page 82

LANDSCAPE MANAGEMENT

More sophisticated business management, more efficient technology, and division of labor take landscaping into a new generation.

Second Generation Landscaping

by **Bruce F. Shank**, executive editor, and **Ron Hall**, assistant editor

The landscape business is entering a new generation. Large landscape management corporations have set a pace and level of sophistication which smaller companies are following. This transformation, gradual during the 60's and 70's, has now reached the majority of the market.

The nursery market, foundation of all landscape markets, is primarily a *product* market in a business world where *service* is king. As a result, the landscape market is figuratively being turned on its head, for both exterior and interior landscape markets.

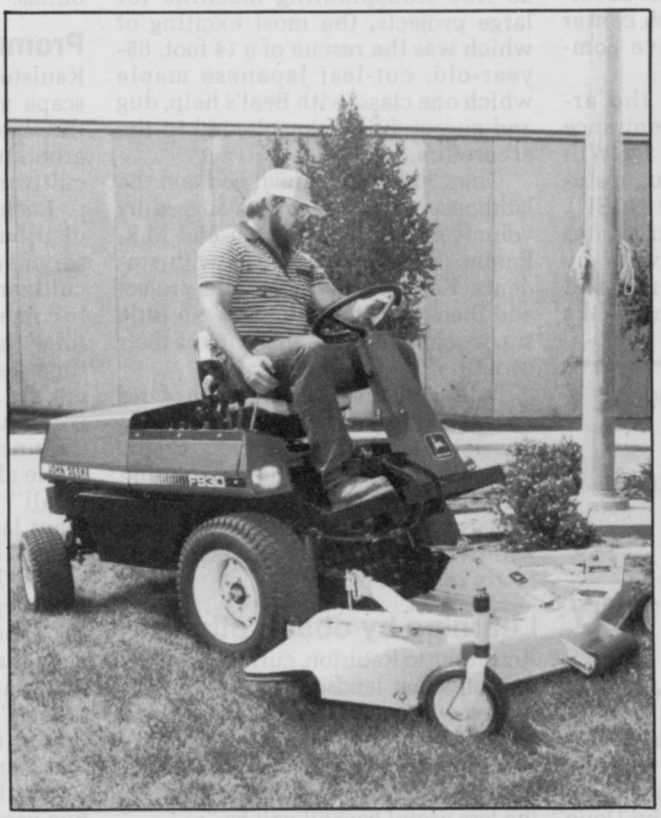
Design, construction, and maintenance services far outvalue the plant material used in a landscape. Furthermore, design and construction are one-time business propositions, whereas maintenance is continuous.

While construction firms expanded into maintenance and design, landscape architects avoided maintenance and construction. The majority of companies labelled design/build today were previously on the construction and maintenance end rather than the design end.

Landscape architects, who often voice concern over the installation of their designs by contractors, are apparently more worried about the responsibilities involved in construction and maintenance than installation by others.

The long-feared fly-by-nighter is less a threat today because his level of sophistication is noticeably less than leading companies. The groundskeeper is fading into extinction as the landscape manager takes his place.

Division of labor and specialization, both signs of higher level business, are in place in new generation firms. Companies dependent upon one person for both business and technical expertise can't keep up with the volume or efficiency of firms using modern technology and business practices.



Front-mounted rotary *greatly increases productivity of mowing crews. This new Deere F930, and its sister walk-behind mower, were designed by the company specifically for the professional landscape market.*

Most of the advancement has taken place in the maintenance end of the business. More than half the landscape contractors who were primarily construction in the early 70's now have maintenance divisions. More than 80% also offer design services as well.

Colleges are changing to meet the needs of the modern landscape business, adding business and marketing courses to their horticulture and agronomy programs. Junior colleges find a growing demand for their landscape graduates. Many companies hire graduates of business colleges for business and marketing positions and then educate them to the technical part of the market.

It appears division of labor is resulting in landscape companies hiring graduates of two-year colleges to be technicians and graduates of business schools for upper management.

"We have seen good improvement in educational programs for the industry," says Rod Keppel, Arbor Heights Nursery, Webster, NY. "I think public relations and management are important. The technical knowledge seems to be there."

"I see the two-year schools carrying the ball," says Ray Gustin of Gustin Gardens, Gaithersburg, MD. "The two-year technical colleges seem to be really training more of a technician."

"Landscape contractors will have

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to have a better understanding of money, particularly with interest rates the way they are," says Dave Pinkus, president of North Haven Gardens in Dallas, TX. "They have to have a better understanding of business and business practices."

Contractors like J. C. Patrick of Proscape, Baton Rouge, LA, want to go beyond maintenance to 'total exterior management'. "Once we get an account," Patrick says, "we want to take care of everything having to do with the exterior."

Most of Pro-Scape's growth came from design/build work in 1984. Patrick is optimistic because he expects a new Jack Nicklaus development in Baton Rouge to attract more companies to his area and to raise standards of construction and maintenance.

DiSanto Companies in Cleveland, OH, takes Patrick's thought a step further, offering exterior and interior landscape design, construction, and maintenance. President George DiSanto maintains separate divisions for exterior and interior work, but often finds out about new interior work when bidding exterior landscape projects. The interior landscape market in the U.S. has been estimated to have sales of $400 million in 1984.

Companies dependent upon one person for both business and technical expertise can't keep up.

David Burnley, Contra Costa Landscaping Inc., Martinez, CA, said his company has gotten more into maintenance the past four to five years due mainly to a building slump. Today, Burnley sees construction **and** maintenance of the many business parks being built in his area as his future strength.

Maintenance does have its drawbacks, says Greg Boykin, of Boyko Maintenance in Wilson, NC. "If I'm going to follow the installation contractor or another maintenance company, I want to make sure he's done a good job in the first place. If you don't look the job over closely at first, all kinds of problems pop up. Boykin says he prefers to design and build a landscape, then put in a proposal for the maintenance.

"The greatest need of the industry is good foremen who take primary responsibility and get the job done."

—Burnley

Bob Doman of Planned Outdoor Living in Ogden, UT, is finding his business shifting from large residential to commercial. "Although our company has concentrated on large residential accounts, we have gained more commercial accounts recently."

"There was a lot more commercial work than a year ago, maybe 50% more," claims Ray Gustin, Gustin Gardens, Gaithersburg, MD. "But you have to remember, our residential work didn't fall of as much as the commercial during the recession, so it didn't have as far to come back."

Part of good business planning is controlling the customer base. Mike McGuinnis, director of business development for Reinhold Landscaping, Flat Rock, MI, helped that company reduce its dependence on auto-related industries. The Michigan company recently landed a Federal Express account in Memphis, 360 miles from Detroit. The good news is the auto market is booming again, but McGuinnis is still seeking a broader account base.

Still needed

"The Industry has two big needs at the present time," says Burnley of Contra Costa. "The greatest need is for good foremen who can take primary job responsibility and get the job done. Many companies feel that's their biggest limiting factor right now.

"Also, we need to educate property managers and other prospective clients to establish a set of prequalifications for their maintenance, says Burnley. They need to look past the initial price in determining which company can meet their needs.

"In the past, property managers have looked at maintenance as a very simple operation that almost anyone can do. They eventually find out they come out way ahead in the long run if they work with an established company with well-trained personnel."

Good management skills are needed more than anything else according to Dorman of Planned Outdoor Living. "There a lot of people in the industry who can read a blueprint and do the technical work. But too often they try to do all themselves instead of delegating responsibility and managing people so that the job is done right and on time. Of course, they have to know how to deal with clients too."

Registration is a solution to fly-by-nighters says Boykin of Boyko. "To be recognized as a registered landscaper in North Carolina, you must first take a test. It separated the men from the boys."

A recent survey by *Western Landscaping* magazine pinpointed nine primary problems facing the landscape industry. They include lack of professionalism, low balling/underbidding, the economy, unqualified personnel, consumer ignorance, government regulations, profitability, shortage of supplies, and competition.

At the same time, the magazine cited ten leading opportunities. They are business diversification, drought tolerant planting, maintenance, water management, drip irrigation, renovation, irrigation consulting, automation/computers, public awareness of profession, and hardscaping.

The most dependable service according to the magazine's readers is maintenance, rated nearly twice as dependable as construction (52.8% to 31.8%).

The new generation of landscape management companies has realized that maintenance is a valuable part of a service company. It also is positioned to take on other services since it now has a business core which can handle nearly any service. This flexibility, coupled with division of labor and efficient technology, is the new foundation of the landscape management market.

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Y52

Four decades of service allow the reins of management to pass smoothly at growing Lied's Nursery near Milwaukee.

Lied's Deep Wisconsin Roots

by Ron Hall, assistant editor

Delmar Lied knows a little bit about putting down roots in the rich but rock-peppered soil of Wisconsin. He knows that with business, as with growing plants, you sink them deep and you nourish them.

Even then, when the seed of the idea flourishes as it has with his Lied's Nursery Co., Inc., you can still be surprised.

"I would have never thought it would have grown like this," Lied says of the growth of the company he started in 1946 when he and his brother set about building a small wooden wagon for lawn work.

In the 39 years since, Lied, a vigorous big man with the ruddy, sun-creased face of a sailor and a calloused grip that means business in spite of his 70-plus years, has been pretty well rooted to the Wisconsin land.

It's a fascinating land.

When the glaciers retreated for the last time they left a jumble of a mess, scraping away earth here and piling it there so that you don't know what the heck you've got just under the skin of topsoil; except Lied knows he's got a crumbled mountain of big, round rocks that pop up like mushrooms with each spring thaw. And he knows his trees and shrubs. He also knows people and business.

His one-time, tiny maintenance company can now put 20 work crews on various landscape projects during the growing season.

Japanese garden *adjoining Lied's office shows the company believes in what it sells to others.*

Sprouting branches

Lied's Nursery is a well known concern in Wisconsin. Based in Sussex, a short drive from Milwaukee, it continues to spread and branch, providing landscape construction and maintenance services in addition to a nursery and a brisk retail store business. Although Delmar Lied is still actively involved in the business, the company has long since passed the point where one man can manage it.

Many of the decisions are now handled by a management team headed by his son, Tom, grandson, Robb, and Rich Skelton, an experienced landscape contractor originally from Youngstown, OH.

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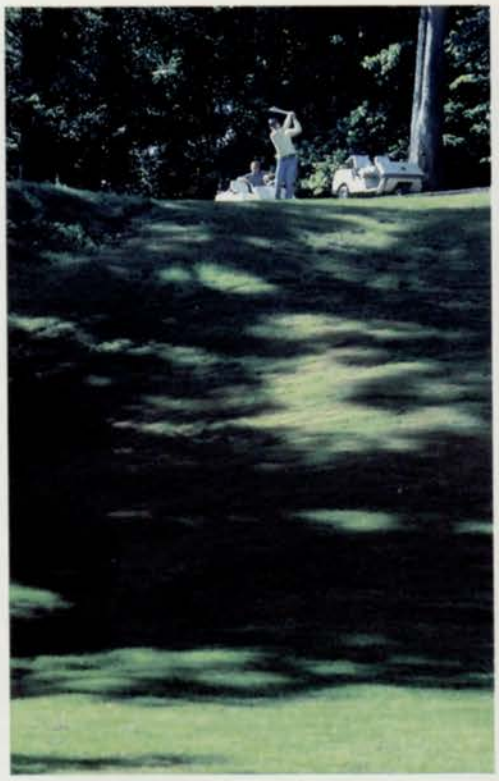

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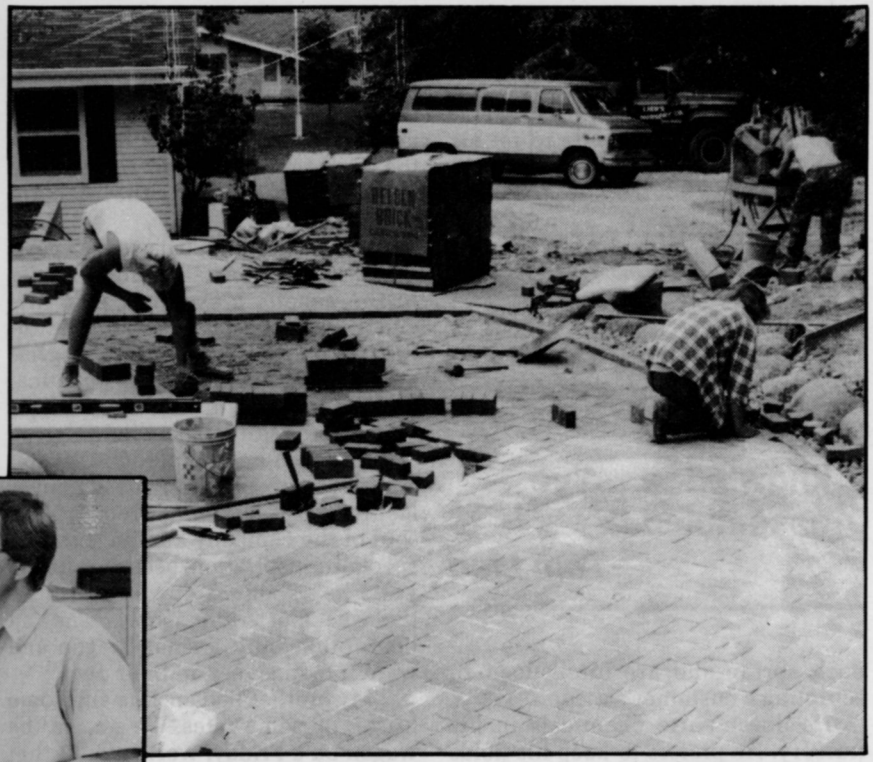

One of the Lied's crews *completes a major landscape project at a fashionable Wisconsin home.*

Rich Skelton, *left, confers with Bob Koca in the Lied's Sussex, Wisconsin office.*

Tom, with a formal education in horticulture and landscape architecture at Michigan State University and experience gained as a lifelong part of the family business, is the driving force behind the operation now. His son, Robb, 26, gave up a promising career as a public accountant in Dallas to come home as the company's secretary-treasurer. Skelton is the administrative vice president.

"We're beefing up the top management," Tom Lied explains. "We'll be responsible for monitoring the progress of our various divisions and teaching in some areas. Dad wants to slow down and be more of a teacher. He still works a full schedule and has more enthusiasm than most men half his age."

Best not biggest

Although the business has been expanding, the company's management does not pursue growth for growth's sake.

"We had to decide what our market was and we came to the conclusion that we couldn't do everything for everybody," Tom Lied says. "We decided we would spend all of our efforts to be known as the best and none of our efforts to be known as the biggest. The philosophy is great and the ideas are sound, but there are always the tune-ups and moves to keep everything in place. We know we don't have all the answers, but we have capitalized on a number of opportunities and we have grown to a reasonable size."

During the growing season Lied's employs as many as 125 employees (the number drops to about 40 in the winter), filling more than 20 landscape construction and management crews in addition to the personnel needed in the retail store, Leid's Garden Valley, and a handful of managers and other experts such as landscape architects and draftsmen.

Lied's provides landscape construction and management in addition to doing a brisk retail store business.

The business—which includes the retail store, landscape construction and landscape management divisions, and the nursery—has been so well received it has practically outgrown its Sussex facilities. A second story for office space was added above the retail store a few years back. Design and drafting is done in offices in the remodeled basement. Almost two years ago Lied's purchased a similar business 80 miles to the north in the rural community of Neenah in the Fox Valley.

Lumping all divisions of the company together, Tom Lied says the company did slightly more than $4 million in business in 1984 with $1 million from the retail section, $1 million from landscape management, and about $2 million from construction.

The company's landscape workload includes a hefty amount of "fussy, custom residential work," Lied says, in addition to simple residential projects and commercial jobs. Lied's handles few blockbuster accounts with the largest this past year being about $100,000. The smallest jobs tackled by the company cost $25 and, surprisingly, Tom points out, they get calls for these as well.

"I guess the significance of all the figures is not a great deal, except it involved a whole lot of work," Tom says.

Esthetics important

Lied's approaches both residential and commercial customers with the idea of being "both technically sound as well as esthetically pleasing," Tom Lied explains. "If we favor one over the other we may lean a little to the esthetically pleasing. We believe the plants are there to serve the client and they should be organized and maintained to serve that purpose."

That's the reason a Lied's consultant will never say to a client: "If I lived here I would do it this way," Tom says. "First, it's terribly unimportant how you would want it done. You don't live there. We have to find out how the client wants it done, how the client wants to feel in his garden. We have to know the things that please him."

Selling landscaping to commercial accounts calls for a slightly different approach.

"If we can dramatize to them what a well maintained landscape can do for them in terms of image, if we can

focus the competitive edge they can gain, then we've done them a service," Lied stresses.

Experienced and capable landscaping firms are entitled to the fees they charge, Lied maintains. "We are in an extraordinarily high service industry and we should have a dollar sign attached to this service. We're in a market where we have to generate 12 months income out of an 8½ month time frame. Our clients owe us the 12 months income for assembling the experts and specialized knowledge we've assembled."

What does Tom Lied enjoy most about his role in the Green Industry?

"I enjoy weaving the talent of people together to make things happen, using my talent to please people and to create and accomplish. Of course I like to get the compliment too," he reflects.

It's no secret what the company founder, Delmar, enjoys most either—his nursery stock, chosen and bred for Wisconsin's sometimes harsh weather. A product of Wisconsin and the farm, Delmar is a Thoreau-like mother hen to his 200 acres of plantlife with species from as far away away as Siberia and Korea.

In a sense, Delmar considers the nursery an experiment in living and he relishes the opportunity to get his hands dirty. His convictions are still as hard as the boulders that emerge each spring and are often used in sculpting a customer's garden.

"Clients owe us the 12 months of income for assembling the experts and the specialized knowledge we've assembled."

—Tom Lied

He doesn't use chemicals in his nursery. He prefers to keep his fields weed free with regular cultivation, a practice, he admits, that creates a tremendous amount of labor but, he believes, results in heartier stock.

"I'm not interested in doing it easier, just doing it right," he says. "By keeping this cultivated we eliminate the weeds and if we don't have weeds we don't have a place for the insects to stay."

Delmar Lied's hard-won experience is aided by an amazing curiosity in the genetic makeup of plantlife; and the work he has done (and continues to do) with clones and grafting has added significantly to the practical knowledge of plants and their adaptability to conditions in the Midwest.

"My mom and dad taught me soil and a love of soil and I guess I never lost it," he says. Delmar remains the soul of the company and, in some respects, its inspiration, because after 40 years he's about as down-to-earth as that weekend so long ago when he and his brother built a small wagon and went into business on their own.

"My brother had an axle and some hinges off some gates. We started the wagon on a Friday, worked on it that Saturday, and Monday we were in business." **WT&T**

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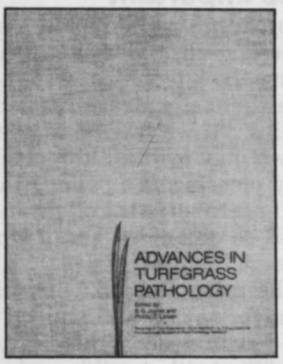

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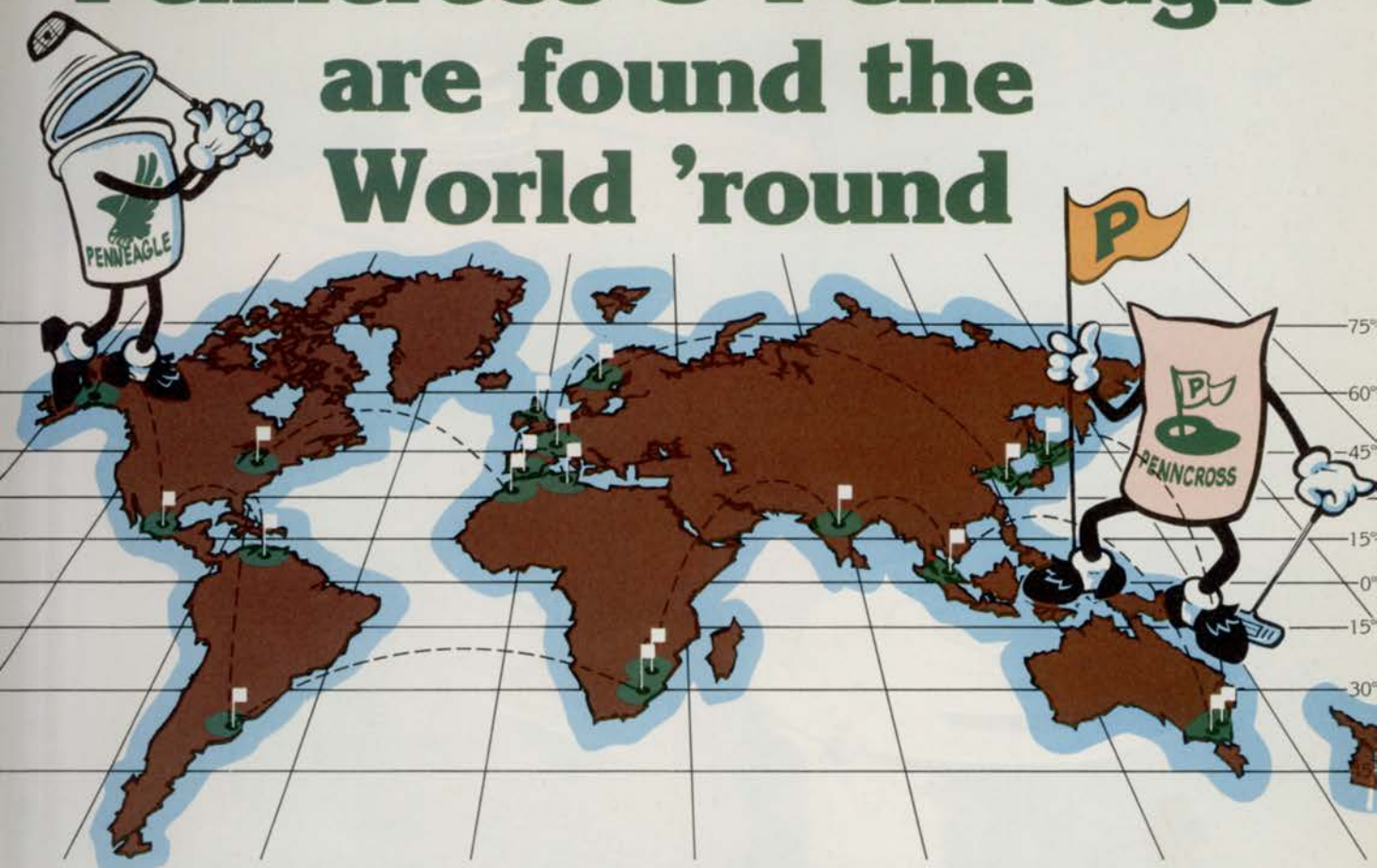

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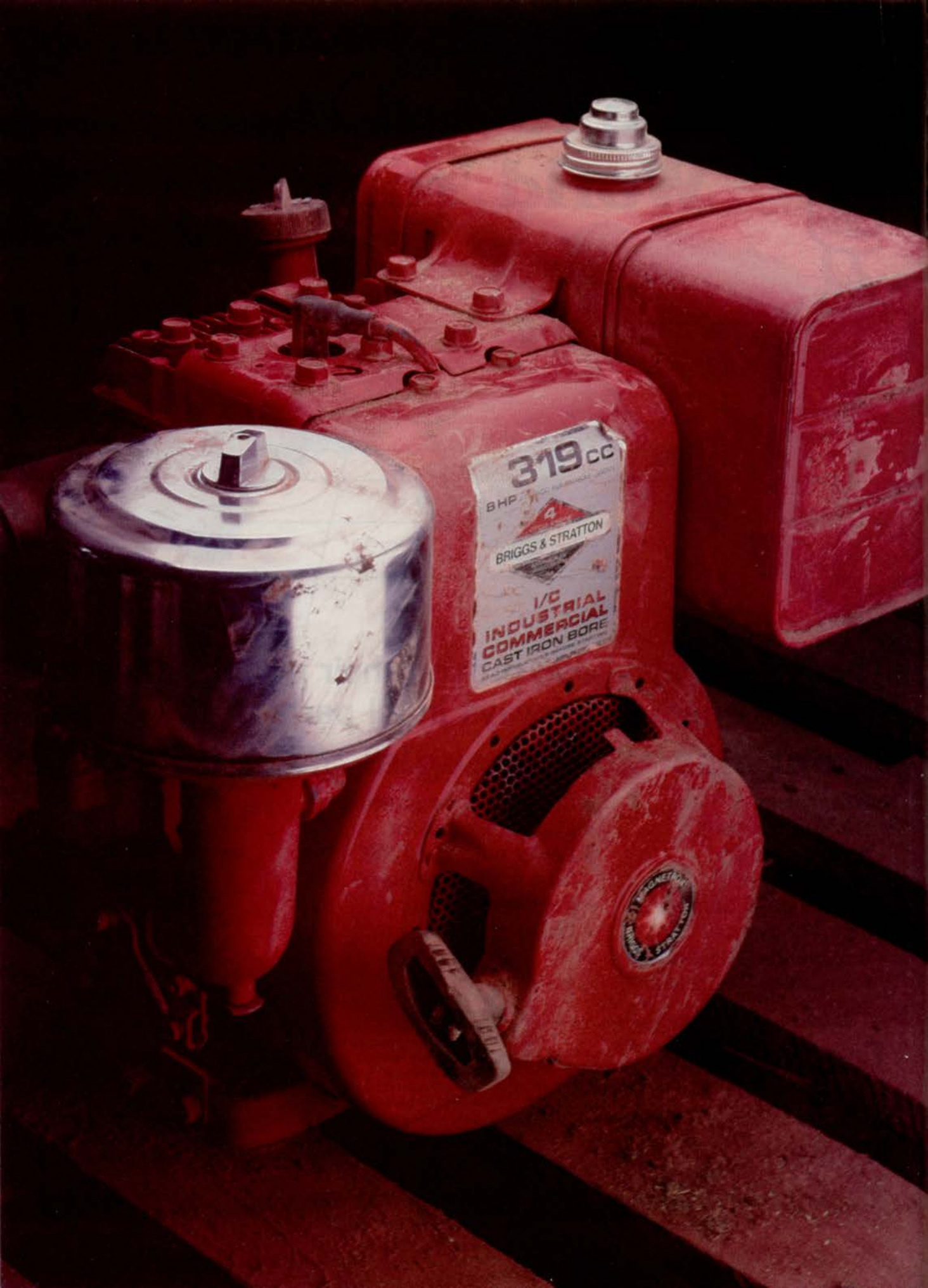
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WANTED: Managers!

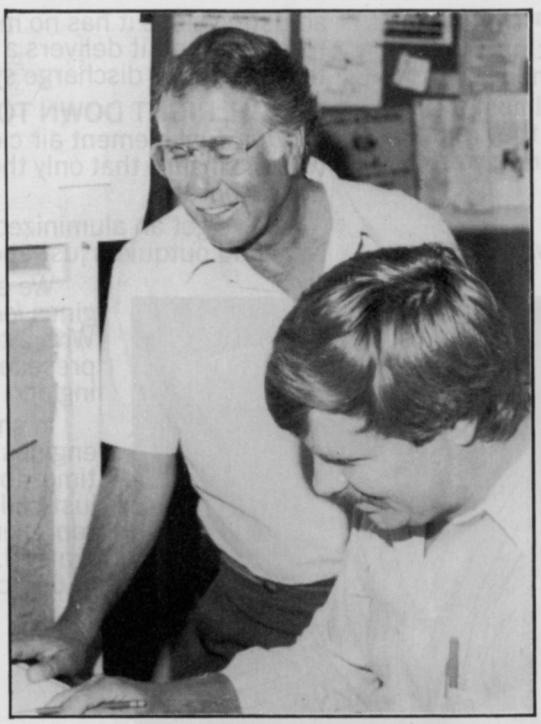
by Ron Hall, assistant editor

There are no trees on a Monopoly board but there is a wheelbarrow. It's a symbol of the past to veteran Florida landscaper Marvin E. Gross who says the days of the wheelbarrow operator are over; but the profession of landscape contracting/management has yet to see its best days.

The era of the trained manager is at hand, he insists, and the profession is ready to blossom. The key is the influx of young, professionally-trained managers.

Management skills essential

"Laborers, they're easy to find. Managers, good managers, that's what this profession needs. It's difficult to get a good manager," Gross says. "The people in this industry have to be extra knowledgable about a lot more than just the technical names of the plants. To do a good job they've got to know their soils, they've got to know habitats. They've got to know business and how to manage."



Gross and Mississippi State *University graduate Mike McMurry. Gross has hired several MSU graduates who received the practical training of Bob Calloway.*

Gross is the owner of Marvin's Garden & Landscape (the name was inspired by the popular Parker Brothers board game) just outside Sarasota, FL. Sun-tanned and laid-back, the mustachioed Gross has carved himself a Garden of Eden, complete with airy bungalow, among the palms and flowering foliage behind his 25-acre tree farm. He laughs when he says you won't find a "Yankee bush" in his bewildering assortment of semi-tropical plantlife, but that doesn't mean you won't see him north of Tallahasee from time to time. His company tackles landscape construction jobs in the (heaven forbid!) so-called temperate zone as well as major design/build projects in south Florida.

Along the sometimes bumpy path of experience (he'll be marking his 25th year in business soon) he's had to learn—and live with— the capricious whims of nature in a variety of climates. He's had to learn that some varieties of palms "will die if you walk by them with an ice cream" while others can survive even the 1983 Christmas freeze that devastated much of the semi-tropical plantlife north of the Caloosahatchee River. To Gross, who takes pride in the hardy stock he keeps in his wholesale tree farm, "there is a risk involved in about everything you do." Particularly planting.

His enthusiasm for the landscape industry, however, continues to grow. One reason is his son Aaron, a student in the excellent landscape architecture program at Mississipppi State University.

> **"Managers, good managers, that's what this profession needs."**
>
> ***— Gross***

Aaron is one of a handful of co-op students at the university. In addition to classroom studies they gain practical experience between terms by working with quality contractors around the nation. Aaron is learning about the real world at Environmental Care in Los Angeles.

Strong ties

The ties between Gross and Mississippi State go deep and have had a major influence on him and his business. It was in 1973 at a seminar in Louisville that Gross met Bob Callaway head of the Landscape Architecture Department at Mississippi State University. In fact, Gross hired Callaway's first graduate as a result of the meeting. Since then he's hired several others right out of the program.

Michael McMurry, vice president and sales director of Marvin's Gar-

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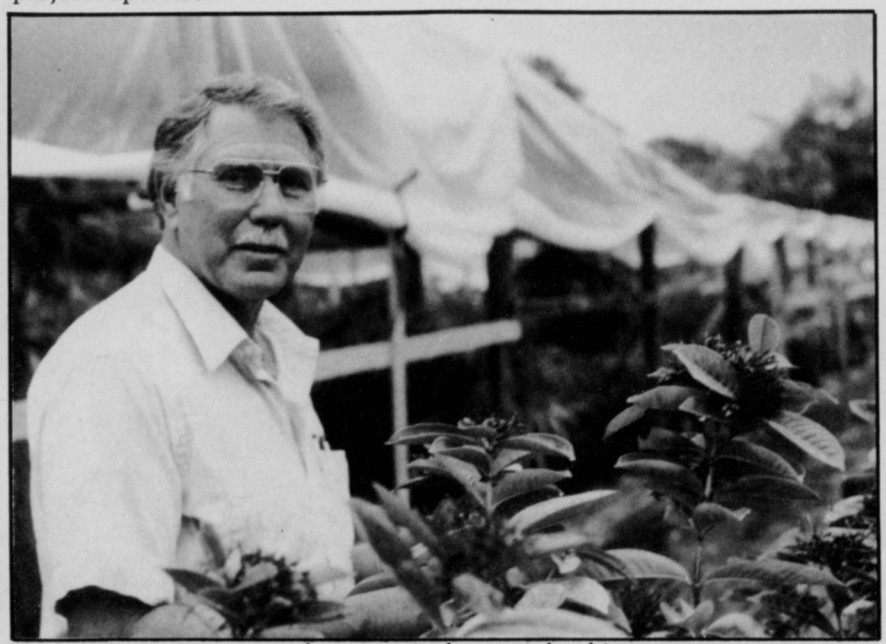
dens, is a graduate of MSU as is the company's architectural designerTidwell and its landscape designer William Vaughan. Gross says if his son, Aaron, returns to the Sarasota business following his formal studies he'll do so as a foreman. He'll have to demonstrate his business abilities just like the others. Rounding out Gross's management team is Michael F. Getzman, manager of the company's Irrigation Division and Mark Anderson, project supervisor.



Gross pampers 25 acres *of semitropical material at his nursery.*

Opportunity knocks

MSU's Callaway echoes Gross's enthusiasm about exciting new opportunities in the landscape field where in recent years the demand by respected landscape contracting firms for top-flight graduates has been outdistancing supply.

"Our students compete financially with any of the other disciplines at the university with the possible exceptions of engineering and computor sciences," Callaway says. "If the student has intelligence, energy, and is mobile the opportunities are there." Callaway, who spent 15 years in the industry before joining academia, says salaries in the $22,000-$25,000 range are not unusual for bright professionally-trained managers with a couple of years experience.

"Basically what the industry is looking for today is not a technician," he adds. "It's looking for managers that have an understanding of the practical as well as theoretical aspects of the industry. Industry is looking for managers that can manage people and dollars."

The value of education didn't come to Gross in a blinding flash. Gross left West Virginia for Florida in 1947 chasing a career in animal husbandry and eager to learn more about Brahman cattle. He never left Florida. He did change his plans. In 1956 he acquired a degree in landscape architecture from the University of Florida and within a few years he was in business.

Marvin's Garden and Landscape found a place in the balmy breezes off the Gulf of Mexico where its growth has been hard pressed to keep up with the growth of Florida's Gulf Coast communities. The population of Sarasota County has jumped from 120,000 to 220,000 since 1970. "When I came down here all these towns were small villages," he recalls

The good life

Gross says Sarasota is a place where the quality of life is important. He claims area residents are proud of the beauty of their area and its growing reputation as a major cultural center. Few other American cities of 50,000 can boast an opera house, several professional theaters, and a futuristic performing arts center, the Van Wezel Performing Arts Hall.

Add the presence of the John and Mable Ringling Museum of Art (the official state art museum of Florida) and the quarters of the East Coast Symphony and you've got a powerful lot of the arts hugging Sarasota Bay where the average annual temperature is a pleasant 73 degrees.

Although fully 75 percent of the dollar value of the work done by Gross's company is commercial, the landscaping of single family residences remains important to the success of Marvin's Gardens. Some of that work is showcased at beautiful residences on the offshore keys with names like Longboat, Siesta, Bird, St Armand's, Lido, and Casey.

"I'm in competition for the luxury dollar. I'm in competition with the other luxury item salesmen,"

—Gross

Marvin's Garden & Landscape, Inc. approached $2 million in business last year.

Competition? Gross doesn't consider others in his trade as competitors.

"In our community there are about four companies that do what we do. We're always bumping heads with each other. All of us have been in a business a number of years. But, I never felt that I've ever been in competition with the other companies," he says.

"I'm in competition for the luxury dollar. I'm in competition with the other luxury item salesmen because if you think about it you really don't need a tree or plant. The more luxury dollars there are to spend, the more we're going to get if we're informed about what we're doing and doing the job right."

Gross puts emphasis on the word "informed". That's the keystone of the landscape construction and management industry now.

"If you're not informed about what you're doing, you're not going to make it. The man with the pickup truck and the wheelbarrow and little professional training just doesn't have the knowledge to gain the customer's trust," he adds.

But to those entering the industry with professional training and enthusiasm the sky is the limit, he insists. "This industry is going to grow forever and forever—just like the bushes," Gross laughs. **WT&T**

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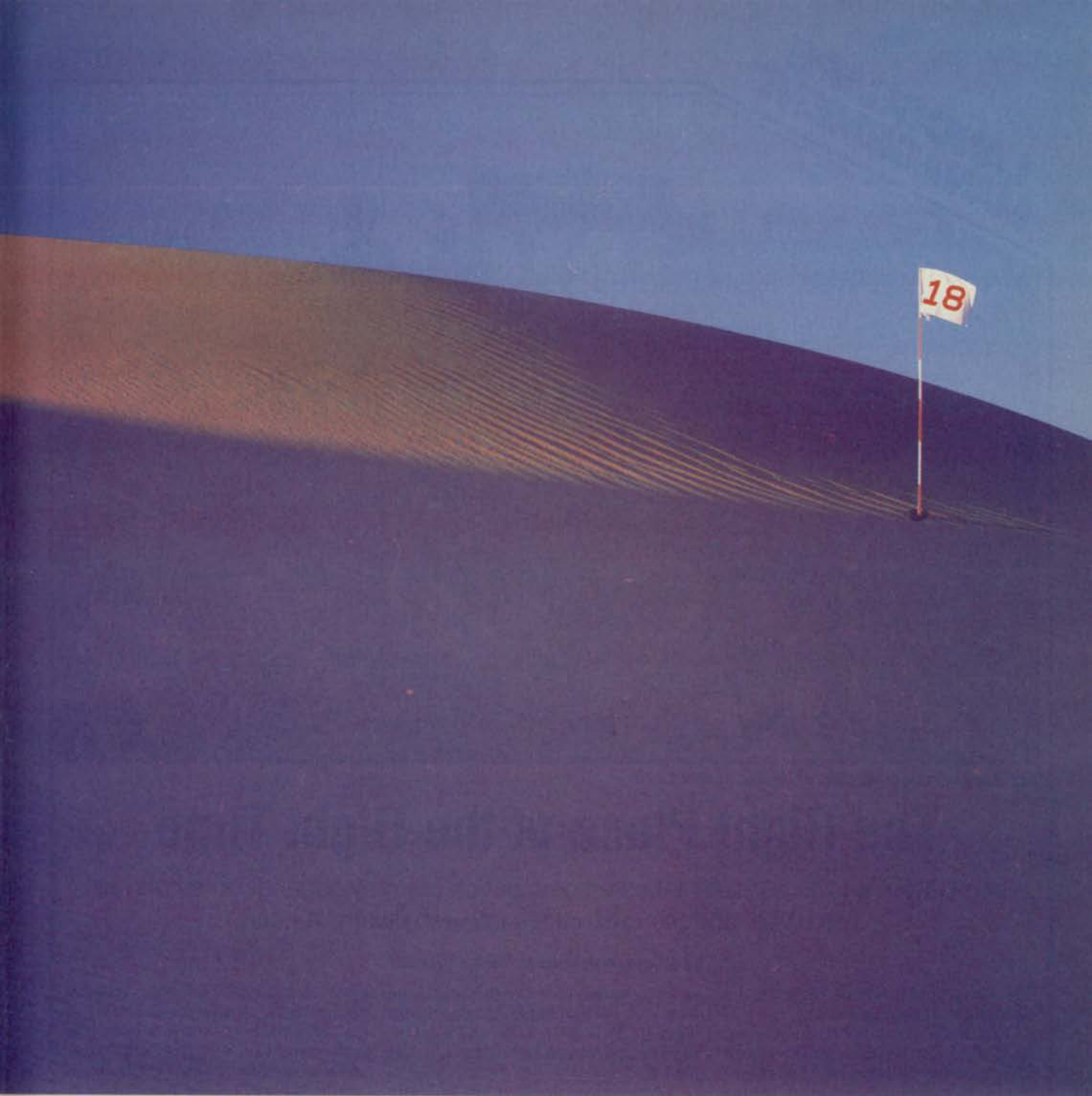

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LANDSCAPE MANAGEMENT

Bill Boykin, *vice-president of Boyco, at IBM Corp.*

The Right Place at the Right Time

Greg Boykin knows success takes a combination of knowledge, good employees, hard work and the customer's interest always at heart.

by Maureen Hrehocik, managing editor

Ask Greg Boykin about being in the right place at the right time.

Not that luck has taken the place of hard work for Boyco Landscape and Maintenance, Wilson, NC; but rather the businessman with the Midas touch is also a savvy entrepreneur.

Eleven years ago, the man with the build of a middle linebacker and the disposition of a friendly pup, was doing landscaping work around his father's construction jobs. Today Boykin is president of an over $1 million company that is one of the most successful landscape maintenance companies in North Carolina.

IBM, Proctor and Gamble, and many of the businesses in Research Triangle Park, NC, right outside of Raleigh, number themselves among his clients.

"I was in the right place at the right time 11 years ago as far as the landscape maintenance market goes," he says. "A lot of people think all you need to do is get a rake and a lawnmower and you're in business. It just isn't so."

His business has also just recently become interstate with a contract from the Virginia Electric Company, VEPCO, which he got on a referral from Carolina Telephone and Telegraph, also a well-satisfied Boyco customer.

A strong commitment to quality work, knowledge in his field and a keen interest in the welfare of the people who work for him have melded into a business that's as profitable as it is satisfying for its owner.

The business

The bulk of Boyco's work is landscape management—mowing, pruning, fertilizing and weed control. The company also installs drainage systems, plants trees, shrubs, does brick and concrete walk work and is even into snow removal. Sixty-two employees are managed by 12 supervisors. Their territories are divided geographically instead of by specialty. There is only one specialty crew—for drainage and brick work.

Boykin's employees are a big part of why his company is special. Some might sniff at Boykin's hiring philosophy.

"We try to hire anybody and everybody," he says proudly. Disadvantaged youth, people in vocational rehabilitation programs and Vietnam vets score high on the list.

"We're willing to train people to do the job right," Boykin says. "We're usually rewarded with employees who are loyal to the company and their jobs."

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With the vocational rehabilitation employees, the government helps pay their salary while they're being trained.

Due in large part to his hiring philosophy and for his continued free maintanance of the City of Wilson's athetic fields, Boykin received the highest honor of his life last year, the North Carolina Distinguished Service Award from Lt. Governor James C. Green. "It was certainly one of the highlights of my life," the 34-year-old says in a thick North Carolina accent.

Attention to detail —*a Boyco trademark.*

Back to business

Most of the predominant grass in the area is bermudagrass. In the fall and winter it goes dormant producing unsightly brownish-yellow turf. "We usually overseed with rye, but in a lot of cases it just took too long to green-up."

That green-up problem launched Boyco into another area—that of lawn dyeing.

"We offer lawn-dyeing to clients as an option to overseeding. So far they've been very receptive. It's an expensive process, but some of our smaller clients prefer it."

Most of Boyco's clients are 100 acres and above. The company has a few residential accounts, but because of slow payment, Boykin is concentrating his efforts where the money is—larger accounts that pay on time.

Greg Boykin, *president of Boyco.*

One of those, Research Triangle Park near Raleigh, is an excellent client, but maintenance-wise, Boykin describes it as "the armpit of the world. It's the absolute worst area to try to get anything to grow in. Being in the transition zone, keeping things green and growing is a never-ending battle."

He overseeds twice a year, in April and October with Kentucky 31, but poor drainage presents another problem.

"The area just doesn't perk," he reports. "It's a beautiful area but it gives us a run for our money."

Being a member of the North Carolina Industrial Council provides Boykin with another marketing tool. He is privvy to all new industry moving into North Carolina. Before they even arrive, Boyco literature is sent out explaining the company's services to the prospective new client.

Hot dogs and turf

Boykin graduated from North Carolina State with a degree in landscpe design and turf management. He worked with the City of Wilson's landscape planning department after he graduated.

"At $500 a month I was about to starve to death," he chuckles now.

It was at that point that Boykin started landscaping his father's contracting jobs. Word got around and friends started asking him to do the same. He finally decided to start a business of his own with his brother, Bill, who is now a vice president with the company.

Boykin is a confident, gregarious man who feels just as much at home eating a few hot dogs at the local college hangout as he does driving a sparkling white Mercedes. He stays involved in the community. The city's three athletic fields are maintained free of charge by Boyco.

"I've always been interested in sports and the town I grew up in," he says. "I do it to support good will in the community."

The Rotary, a Monday morning call-in gardening question radio show and a "hacker's game" of golf get what little is left of his free time.

Spending time with his wife and two children, ages two and four, (and another one due next month) is what he enjoys the most.

The future

Boykin says he wants to move into the Richmond, VA, market because he "wants to work with bluegrass." There are also plans down the road to possibly start a branch in the New England area.

"Right now we just want to do what we do well," he says.

"I've seen a lot of good companies go under because of poor management or non-payment. We decided to hang around the companies who will pay their bills.

"Those who do good work will survive," Boykin continues, "those who cut corners will go under."

There have been some, even in Wilson, who see Boykin's success and think they can do the same thing. Wilson is the world's largest tobacco market. Because of that fact, per capita, it has the most millionaires in the U.S.

"Prospective landscape maintenance people come in and see all the big homes and think it'll be easy to become one of them (millionaires), but it takes a lot more than just mowing lawns to be successful."

Boykin is very conscious of professionalism in the business. He's also willing to share whatever knowledge he has to keep the industry "clean."

He is a member of the Professional Grounds Management Society, Professional Lawn Care Association of America and is very "pro" the state licensing test for professional landscapers.

"In this world, you reap what you sow," Boykin concludes. "There's enough business out there that people don't have to cut each other's throats." **WT&T**

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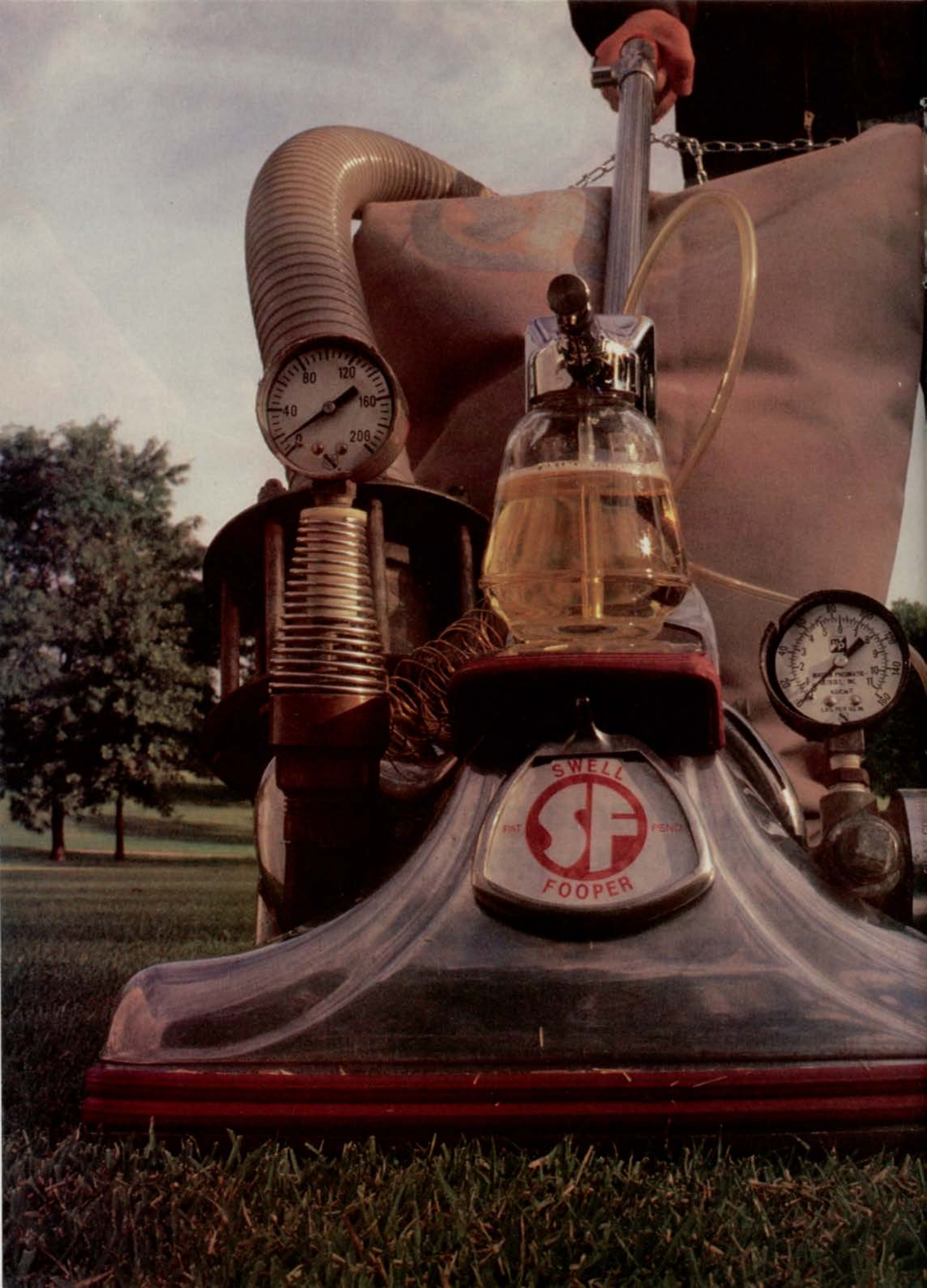
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Landscape Manager's Guide to Diseases of Cool and Warm-Season Trees and Ornamentals.

COOL SEASON

by **C. C. Powell**, Professor of Plant Pathology, Ohio State University.

Problems with ornamental plants in the landscape result from varied and overlapping causes. Some causes are more obvious than others; such as a poor planting or pruning, severe weather, or a harsh environment. Often, the cause is more complex and hidden, as is the case with fungi or bacteria attacking a plant.

Each plant has a certain amount of built-in resistance to assaults on its health. When man takes a plant out of its natural habitat and makes it fit his design, he needs also to take responsibility for the resulting problems he has caused the plant.

Diseases are some of the toughest problems to understand and correct. The purpose of this Guide is to explain the primary disease-related problems of landscape plants.

Types of plant pathogens and control tactics

This list of pathogens is by no means complete. Its intent is to help you become familiar with the types of plants pathogens you may encounter and to provide some generalized ideas concerning control. It is important to remember that generalities concerning biological phenomena are filled with exceptions.

Bacteria: Bacteria comprise a diverse group of single-celled microbes, which cause many diseases of ornamental plants. Commonly encountered diseases include bacterial leaf spot of English ivy; fireblight on crabapples, Mountain ash, hawthorn, Cotoneaster and Pyracantha; and crown gall on crabapples and Euonymus.

Control of bacterial diseases is usually a preventative (prior to infection). Always begin with clean plant material from a reliable source. Resistant cultivars can be grown in many cases.

For fireblight, promptly prune out diseased plant parts. Be sure to sterilize your pruner with alcohol (70%) between cuts. Avoid mechanical damage to plants to reduce crown gall infection.

Nematodes: Several types of very tiny roundworms cause plant diseases on many ornamentals. Lesion nematodes (*Pratylenchus*) and pin nematodes (*Paratylenchus*) cause plant stunting and poor growth because they weaken the root system by feeding on it. The root knot nematode (*Meloidogyne*) causes nodules to form on roots, impairing root function and stunting the plant.

Good sanitation is the primary means of controlling these soil-borne pathogens. Soil fumigation will kill adults as well as eggs. After plants are growing, nematicides granules or drenches can be applied.

Generally, fumigation and/or nematicide treatments in landscapes should be done only after a nematode soil analysis indicates treatments are necessary.

Viruses and Mycoplasmas: These are systemic plant disease causing agents that live and multiply only within living cells of the host. They are most often spread by plant contact or by sucking insects, especially aphids and leafhoppers.

The symptoms they cause are very diverse, depending upon pathogen. Generally, vein banding, mosaic (a mixture of irregular-shaped dark and light green areas on the leaf), flecking, or spotting will show up on leaves. Sometimes, growth abnormalities

LANDSCAPE PLANT DI

Anthracnose, *left, is a fungus disease common to dogwoods. It attacks flowers first, then leaves and young twigs. Early fungicide application is important.*

Apple scab, *on crabapples, shown below, is a major disease requiring early application of fungicides and planting of resistant crabapple varieties.*

will appear. This is often similar to damage caused by herbicides. Finally, they can cause stunting of plants.

You should try to prevent spread of viruses by controlling insects and avoiding unnecessary handling of plants.

Powdery Mildew Fungi: The powdery mildew causing fungi are very host specific. Generally, the powdery mildew that infects one plant will not infect any other.

Powdery mildew is commonly seen on roses, lilacs, English oak, deciduous azaleas and zinnias. The white growth appearing on leaves and stems is the fungus growing on the surface of the tissue. Small structures, called haustoria, grow within the host cells, injuring them as they obtain food.

Powdery mildew will not usually kill a plant but may weaken it and reduce winter hardiness. The unsightly fungus lesions greatly reduce the quality of the plant.

Powdery mildew can be effectively treated with chemicals. The white lesions will remain, however, even though the fungus may be dead. For highly susceptible plants such as roses, a regular preventive spray program should be planned and carried out.

Rust Fungi: The rust fungi are also quite host specific. Rusts usually sporulate abundantly on leaf tissue. It is the masses of orange to dark red col-

SEASE CONTROL GUIDE

Some Common Diseases of Woody Ornamentals and Fungicides Registered for Their Control

Host	Disease	Fungicides
Crabapple	Scab	Benlate, Daconil 2787, Mancozeb, Phaltan, Zyban
Dogwood	Leaf spot	Benlate, Daconil 2787, Fixed coppers, Maneb, Zineb, Zyban
Hawthorne	Leaf spot	Benlate, Daconil 2787, Fixed coppers, Zyban
Hawthorne	Rust	Bayleton, Daconil 2787, Fixed coppers, Zyban
Juniper	Tip blight	Benlate, Fixed coppers, Zyban
Lilac	Powdery mildew	Bayleton, Karathane, Sulfur, Triforine, Zyban, Rubigan
Maple	Leaf spot	Fixed coppers
Pine	Tip blight	Benlate
Pyracantha	Scab	Benlate, Daconil 2787, Fixed coppers
Roses	Black spot	Benlate, Captan, Daconil 2787, Fixed coppers, Mancozeb, Maneb, Phaltan, Triforine, Zineb, Zyban, Rubigan
Roses	Powdery mildew	Benlate, Karathane, Milban, Triforine

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ored spores that we notice on plants when they become diseased.

Rusts are seen on many crops, but are most commonly seen on Washington or Lavalle hawthorne, chrysanthemums and snapdragons.

Rusts are, for the most part, cool-weather diseases. Rust spores are spread in air currents and splashing water. They must have water in order to germinate and infect the leaf. Therefore, control involves watering early in the day and using protective fungicide sprays.

Leaf Spotting and Blighting Fungi: Like the rusts or mildews, these fungi are spread either long distances by air or shorter distances by splashing water. Most notable among this group are *Entomosporium* leaf spot on hawthorn; scab on crabapple and Pyracantha; *Botrytis* flower blight; and anthracnose on shade trees.

To control leaf spotting fungi, maintain plant vigor. Grow resistant cultivars. Also, chemicals can be sprayed on the plant to prevent infections.

Water Molds: *Pythium* and *Phytophthora* fungi are often called water molds because they have a spore stage that is adapted to spread by swimming in water. These organisms attack a wide variety of plants, causing root rots, stem rots and cutting rots. Many times, they will not kill a plant. They will "prune" the root system, resulting in poor growth, yellowing or stunting of the top portion of the plant.

These organisms are generally found in all soils. Environmental control can be achieved by improving the drainage of the soil. The fungi do not survive well in properly drained planting beds. Finally, soil drench fungicides can be used prior to planting or routinely on plantings where high maintenance is possible.

Root and Crown Rotting Fungi: Aside from water molds, many other fungi cause root and crown rots. The fungus *Rhizoctonia* lives in the soil and attacks a wide variety of crops. Some species of *Fusarium, Cylindrocladium, Sclerotinia and Thielaviopsis* behave similarly. All of these fungi can persist in the soil for many months through specially adapted resting structures.

Control of these fungi involves promoting vigorous growth through good horticultural programs. Do not plant transplants too deep. Soil drenches may be applied, although the materials used will generally be different from those used for water mold control.

Stem and Twig Cankering Fungi: Many fungal organisms, such as *Phomopsis, Diplodia, Fuscicoccum*, etc., cause stem or twig cankers. Most notable examples include twig blight on juniper, branch blight on Shumard oak, and tip blight on Red or Austrian pine. These pathogens primarily sporulate in the spring. The spores are spread by splashing water, insects and wind.

Fungicides that are currently available often do not effectively control these diseases. Cultural control involves maintaining plant vigor, protecting the plants from winter injury, pruning out diseased plant parts and growing resistant cultivars.

Plant Wilting Fungi: *Verticillium* is a fungus that causes wilting of a large number of woody ornamentals such as hard maples, redbud and Russian olive.

The fungus invades through injured roots, grows into the stem and plugs the vascular system of the plant. Along with wilting, it often causes browning of the vascular system. It also has a resting structure to help it resist adverse soil conditions.

Ceratocystis ulmi is the plant wilting fungus that causes Dutch Elm Disease. It is spread from plant to plant by root grafts or by being carried by elm bark beetles.

Control programs involve preventive fungicide injections and insecticide sprays. For infected trees, prompt removal of the tree or the infected portion is the only thing to do.

Plant wilting fungi cannot be controlled easily with chemicals. Once they are within plants, they are not subject to chemical killing. Therefore, we are once again dealing with control via sanitation, growing resistant plant types and maintenance of vigor.

Fungicides

Fungicides work in consort with other integrated practices of disease man-

continued on page 60

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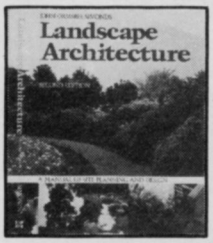

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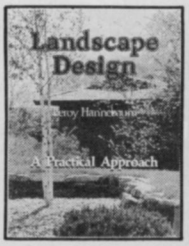

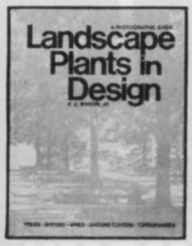

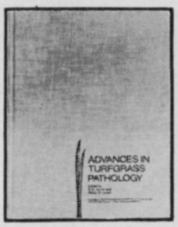

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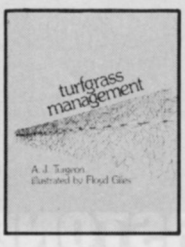

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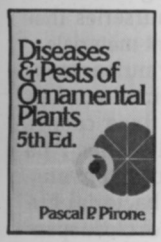

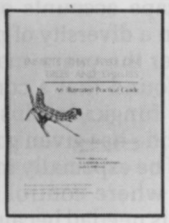

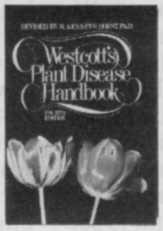

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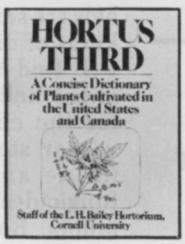

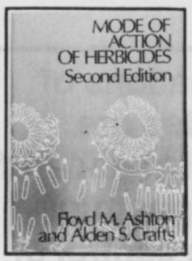

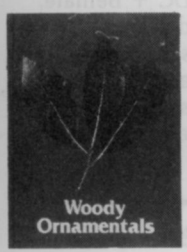

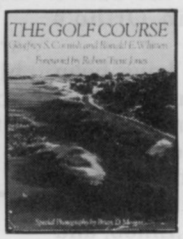

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agement. Control of stress, use of resistant plants, and sanitation remain as basic preventive elements of a good disease management program.

Fungicides generally act as preventives as well. If they are applied to the plant surfaces prior to the infection of the pathogen, they will prevent the infection and develpnment of disease on that plant tissue.

There are several new products and new combinations of old fungicides available for use in landscapes and nurseries. Even though they are highly effective, they still must be considered preventives and used in consort with other integrated control practices. It is also important to remember that many of them are not necessarily better than the old products that we already have available to us!

Combinations of fungicides are generally needed for broad spectrum disease control of diverse plants in landscape accounts.

One of the newest fungicides to become available for use on woody ornamentals has been Bayleton 25WP. This systemic fungicide is quite effective for many diseases, most notably the rusts and the powdery mildews. It is labeled on a good variety of plants in the landscape. Bayleton is a preventive fungicide that is best applied in cool weather to take advantage of the uptake and movement of the product within the plant tissues. The interval between applications can generally be lengthened to as many as 30 days under proper environmental conditions.

Rubigan is another systematic fungicide, especially effective on powdery mildew.

Another very useful product for nurserymen and landscapers is Zyban fungicide. This wettable powder product is a combination of a systemic fungicide (Thiophanate-methyl) plus a surface protectant (Mancozeb). As such, it truly provides broad spectrum control. Again, the product has a very good label and is therefore legally useful on many, many ornamentals in the nursery and landscape.

Daconil 2787 is a fungicide that is known by many nurserymen and landscapers. What some may still fail to realize is that the Daconil label has been greatly expanded in recent years and now includes more than 40 different ornamentals and ornamental diseases. Again, as with the other products mentioned, Daconil is quite effective and would be quite useful on those products for which it is labeled.

There are two new products that are available for use for control of the *Botrytis* blight diseases we tend to see in the fall on flowerinq plants, most notably on herbaceous perennials and annuals. These products are Chipco 26019 and Ornalin. Whereas their labels are somewhat restricted as to the kinds of diseases they control, many will find them useful. Nurserymen might find them particularly useful for the control or management of winter storaqe mold diseases. Triforine and Milban are also new fungicides with modest ornamental labels. Both are effective against powdery mildews. Triforine is also used widely on roses for rust and black spot control. It is the active fungicidal ingredient in Ortho's Funginex and Orthenex.

Many fungicides that have been available for some years are still found by many to be extremely useful and possibly the most efficacious products that nurserymen and landscapers can use. These include the EBDC fungicides (Maneb.,Zineb, and Mancozeb), the fixed copper fungicides (such as Kocide 101, or Bordeaux mix), Karathane (for powdery mildews, but temporarily suspended), Phalthan, Sulfur, and the systemic fungicide Benlate.

The label on Kocide 101 has recently been expanded to include many more ornamentals. It is especially useful for nurserymen. Benlate, as most of you know, is already widely labeled on all ornamentals for powdery mildews, anthracnose, and many other diseases. The EBDC fungicides are still not as widely labeled as we would like. They are very efficacious on a variety of diseases and are especially useful in combination sprays.

You will note that for most, there is one of the older products available as well as one or more of the new products. A careful study of the labels of fungicides currently available will enable landscapers and nurserymen to select products that are properly labeled and registered on the plants they wish to spray.

What about scheduling fungicide sprays into routine management programs. This is a difficult subject which can be approached in many different ways by many different practitioners.

Generally, we will need to combine two fungicides together to net the broad spectrum of disease control that we would need when trying to service landscape accounts or nurseries that contain a diversity of plant materials.

Over the years, many nurserymen have found that a combination of an EBDC fungicide plus a fixed cooper fungicide has given good results. This would be especially important in nurseries where control of bacterial fire blight is needad because of close spacings of large blocks of susceptible plants (such as crabappoles, cotoneasters, pyracantha, etc.). Generally, these bacterial diseases are not successfully controlled with sprays by landscapers because of the need to spray frequently throughout the rainy periods of the growing season.

Many landscapers, on the other hand, have gained from a combination of an EBDC plus Benlate fungicide. Again, we are talking about products that have been available for some time! The new product Zyban is, in fact, a combination very similar in mode of action to that of an EBDC + Benlate.

Both Bayleton and Daconil 2787 are excellent products that are probably best used alone. Many landscapers and nurserymen are alternatinq one of the above combinations with either Daconil 2787 or Bayleton. They are applying sprays monthly in the landscape and biweekly in the nursery. Bayleton would be an excellent fungicide to choose if there were a severe powdery mildew or rust disease that required special attention.

Preventative programs with proper spray intervals are the secret to successful disease management.

Whereas it may seem that the world of fungicides has changed a lot in recent years, one must realize that the basic approaches and the usefulness of chemicals in the landscape and nurseries to control infectious diseases has remained essentially the same. Preventive spray programs with proper intervals between applications are the secrets to successful disease management. Obtain labels of the new products, study them and see how they will fit into your disease management program.

continued on page 66

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Plant Disease Development Calendar

PLANTS	DEVELOPMENT OR DISEASE	PATHOGEN SCIENTIFIC NAME	PLANT PARTS AFFECTED	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
Trees															
Crab Apple	Flowering														
	Cedar apple rust	Gymnosporangium sp.	leaves												
	Fire blight	Erwinia amylovora	shoots												
	Powdery mildew	Podosphaera leucotricha	shoots												
	Scab	Venturia inaequalis	fruit leaves												
Dogwood	Flowering														
	Anthracnose	Elsinoe corni	leaves flowers												
	Leaf spot	Septoria floridae	leaves												
	Scorch	Physiological	leaves												
Oak	Flowering														
	Anthracnose	Gnomonia veneta	leaves												
	Leaf blister	Taphrina caerulescens	leaves												
	Rust	Cronartium sp.	leaves												
Pine	Flowering														
	Eastern gall rust	Cronartium quercuum	branches trunk												
	Fusiform rust	Cronartium fusiforme	branches trunk												
	Needle cast	Hypoderma lethale	needles												
	Needle rust	Coleosporium sp.	needles												
Red Bud	Flowering														
Red Cedar	Cedar apple rust	Gymnosporangium sp.	branches												
Red Maple	Flowering														
	Anthracnose	Gloeosporium apocryptum	leaves												
Saucer Magnolia	Flowering														
Sycamore	Anthracnose	Gnomonia platani	shoots												
Woody Plants															
Azalea	Flowering														
	Leaf gall	Exobasidium vaccinii	leaves												
	Petal blight	Ovulinia azaleae	petals												
Camellia japonica	Flowering														
	Flower blight	Sclerotinia camelliae	flower												
	Leaf gall	Exobasidium camelliae	shoot												
Camellia sasanqua	Flowering														
	Leaf gall	Exobasidium camelliae	shoot												
Crape Myrtle	Flowering														
	Powdery mildew	Erysiphe lagerstroemiae	leaves flowers												
Forsythia	Flowering														
Pyracantha	Fire blight	Erwinia amylovora	shoots												
Rhododendron	Flowering														
	Leaf gall	Exobasidium vaccinii	shoots												
	Dieback	Phytophthora cactorum and other species	young shoots												
Rose	Flowering														
	Black spot	Diplocarpon rosae	leaves												
	Botrytis	Botrytis cinerea	flowers stems												
	Powdery mildew	Sphaerotheca pannosa	leaves												

continued on page 66

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From the turf care group at Union Carbide

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Mosaic virus of a rose, *shown left, is characterized by a bright yellow zig-zag pattern on the foliage. The virus will not affect plant vigor and can be pruned out. Infected roses should not be used for budding or grafting. Boxwood blight, below, can be contained by good sanitation, debris removal, and fungicide applications.*

WARM SEASON

by Donald J. Blasingame, extension plant pathologist, Mississippi State University, MS

The south is blessed with an environment conducive for the growth of most ornamentals plants. Unfortunately, the same environment is also good for the development of a number of disease agents, especially fungi.

In an article such as this it is impossible to list all of the various ornamentals grown in this region and the diseases that occur on them. Rather, an attempt will be made to list nine of the more common ornamentals grown in the sunbelt and the major disease problems that they face.

Azaleas

Azalea Petal Blight: This disease is largely confined to azaleas grown in the southern coastal states from Maryland to Texas. Indian and Kurume azaleas are especially susceptible.

The disease first appears as small, water-soaked spots on the petal. These spots sometimes give the flower a freckled appearance. Under favorable conditions these spots enlarge rapidly and cause the flower to become limp and eventually collapse. The whole flower appears to "melt down" and tends to cling to the foliage rather than fall to the ground as spent healthy flowers.

Petal blight often affects the blooms of entire plants within a matter of a few hours progressing so rapidly that it destroys the beauty of the plant overnight.

The fungus lives from season to season on infected blossoms in the mulch. Therefore, to control flower blight it is important to remove all the old mulch from the plants and replace with new mulch before the plants begin to bloom. Drench the soil with Terraclor in early January using one cup of 75% WP in enough water to wet 100 sq. ft.

When the blossoms begin to open, apply either Benlate, Thylate or Bayleton as a blossom spray. More than one application may be needed during the blooming period.

Twig Die-Back: There are several fungi that have been associated with this disease complex. These fungi normally enter the plant through either bud or leaf scars. The die-back organism may kill a few inches of the twigs or, if untreated, may consume the entire plant.

To control die-back it is important to prune and destroy all of the infected branches. Remember the normal pruning period for these plants is just after blooming. Since the infection period is just after the bloom season, it is important to continue your spray program for petal blight beyond the blooming period.

Leaf Gall: Leaf and flower gall is a common disease on azaleas and camellias in the south. The fungus may infect the developing leaves, stems and flowers causing severe distortion, swelling and thickening of the plant parts. As the galls form, the infected parts may become white or light green in color. The disease may be particularly severe during cool, moist weather.

The best control is to remove the galls when you first notice them on the plant. This is easiest to do when there are only a few galls present.

There may be situations where removing galls is not practical. In such cases, a spray program is advisable for the control of this disease. Spray the plants once before the new leaves are unfurled using Maneb, Captan or Zineb. Apply at 14-day intervals during the spring or as long as young leaves are present.

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Boxwood

Boxwood Blight (Canker): The term, branch and twig blight, is used to describe the problem of twigs or entire branches dying when the remaining parts of the plant appear healthy. Leaves may shed prematurely leading to the death of the twig. The affected foliage takes on a light, straw color.

Several fungi are associated with blighting of boxwoods in the south. In order to insure maintenance of healthy plants where blight has become a problem it is recommended that an annual practice of pruning, sanitation and spraying be carried out. The annual removal and burning of all dead leaves and twigs lodged in and around the plants is important.

Anthracnose control requires early, monthly applications of fungicides prior to blooming and another application in September.

Several applications of a broad spectrum fungicide such as Daconil, Maneb or fixed copper have shown to be effective in preventing most blighting problems. The first application should be made when the plants are pruned. The second application should be made when new growth is approximately one-half completed. The remaining applications can be made at various intervals depending upon further disease development.

Nematodes: Nematodes are small, worm-like organisms that attack the root system on plants. Boxwoods grown in the south are susceptible to a number of nematodes including root-knot, lesion, spiral, stubby-root, lance and ring.

Nematode-affected plants are weak, stunted and gradually decline. If nematodes are suspected, a soil nematode analysis is needed to determine the types and population of the nematodes present.

Few chemicals are available for the homeowner's use in controlling nematodes. In some cases it is more practical to replace infested plants with a different variety of plant that is not affected by nematodes.

Phytophthora Root Rot: Off-color foliage followed by sudden wilting and death of the entire plant is characteristic of this disease. Yews, rhododendrons and a large number of other woody ornamental plants are also subject to Phytophthora. It is extremely difficult to rid infected plants of this disease.

The disease is more severe in poorly drained soil. Chemical control is difficult.

Camellia

Flower Blight: This blight is confined to the flowers which turn brown and drop. Most species and varieties of camellias appear to be equally susceptible to this blight.

The control of camellia flower blight, even though it is caused by a different fungus, is similar to that for azalea petal blight.

Die-Back: A canker and die-back of camellias is widespread and frequently destructive in the southern states. The fungus normally enters through wounds or through natural openings such as scars left by abscissing leaves or petals in the spring.

To control, prune and destroy all cankered twigs. When the cankers occur on the main stem of the plants, surgical removal of the diseased portions may be attempted. Be sure to use tree paint containing a fungicide to cover all cut areas.

A fungicide application can be made shortly after the blooming season to try to protect the plant from entrance of the fungus through natural openings. Materials such as benomyl or daconil have proven to be effective.

Leaf Gall: The symptoms and control of leaf gall on camellia are similar to those that occur on azaleas.

Virus Diseases: There are several virus diseases that occur on camellias. These normally appear as variegation or yellowing in the leaf or flower. Not all yellowing of camellia leaves is a result of a viral infection however, but may be some type of nutritional disorder.

Plants suspected of harboring a virus should be discarded or at least isolated from healthy plants. Care should be taken while pruning so that suspected plants are pruned last to prevent spreading the virus to healthy plants.

A successful disease control program on camellias means you must follow a well planned integrated disease control program. Here is an example of such a program that will help reduce many of the camellia diseases.

1 Buy only disease-free plants. Isolate new plants from existing plants for 3 - 6 months to check for any possible disease development.

2 Take cuttings from current season's growth from the top of healthy plants.

3 Root in a disease-free environment. If possible, use a sterile rooting medium.

4 Prune plants properly. Do the major pruning just after the flowering period. Paint the wounds properly with a pruning paint.

5 Use good cultural practices.

- Provide proper air circulation.
- Use correct amount of fertilizer. Over fertilization causes problems, especially during time when plants are most susceptible to die-back.
- Mulch when possible.
- Remove and destroy diseased or spent flowers.

6 Use chemical controls. In areas where flower blight and die-back are problems, follow an annual spray program along with the previous suggested practices.

Dogwood

Anthracnose: Spot anthracnose is a serious fungus disease that attacks flowers, leaves, young shoots and berries of dogwood.

The flowers are usually malformed and covered with small, circular, reddish to purple spots. The margins of these spots are normally much darker in color than the centers.

Leaf infection occurs after the blooming season is over. Heavily infected young twigs may die back several inches from the tips.

Annual removal and burning of all dead leaves and twigs lodged in and around plants helps reduce the incidence of boxwood blight.

Anthracnose control requires early application of fungicides prior to blooming. A regular spray program is required for good control. Monthly applications of fungicides such as Benlate, Maneb or Captan can be applied during March, April, May and September.

Nectria Canker: This fungus attacks dogwoods as well as other hardwoods in the southeast.

The first symptom is usually a dark area on the bark with a water-soaked appearance. These areas will begin to swell resulting in a great deal of bark splitting. Infected areas may be a few inches to several feet in diameter and can completely gird the trunk.

Cankers are targets for insects and are easily broken during heavy winds. Control is very difficult after infection occurs.

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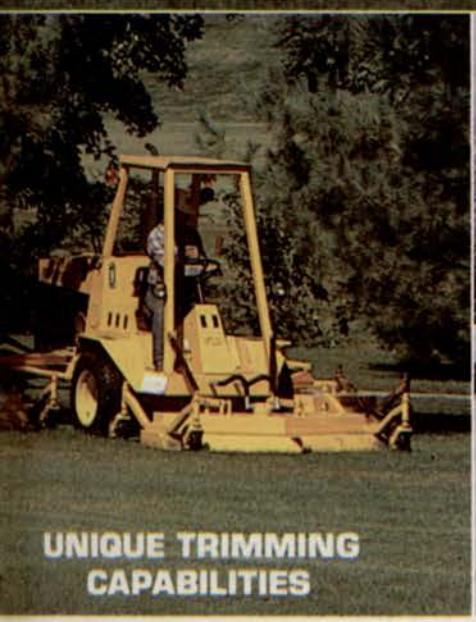

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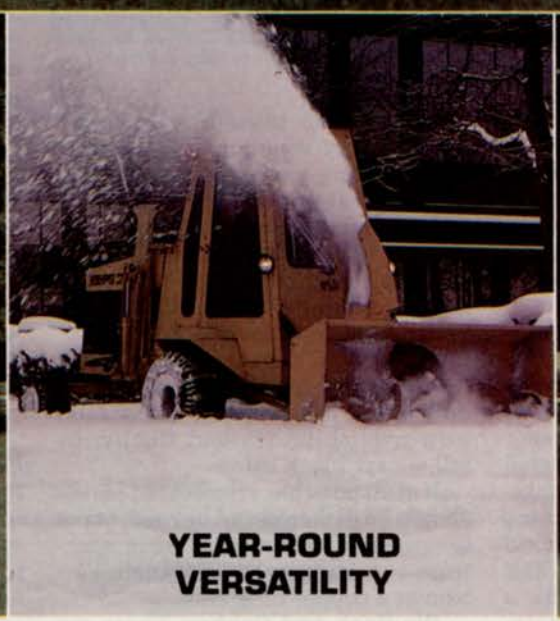

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If the canker is small, cut the tissue back to healthy wood and paint with a wound dressing. Severely affected trees should be removed. No good chemical controls are available.

Gardenia

Canker: Symptoms of this fungus disease are yellowing, wilting, shrivelling and falling of leaves and buds. The cankers girdle the stems causing dieback. Cankers may become enlarged to twice the size of the normal stem.

Experience has shown that the fungus gains entrance through mechanical injuries so care should be taken when pruning the plants or mowing around plants to prevent this disease from spreading.

Also, spraying with a broad spectrum fungicide such as Maneb or Daconil soon after pruning is recommended.

Sooty Mold: Sooty mold is a frequent problem on leaves of evergreen shrubs such as azaleas, camellias, and gardenias.

Sooty mold is a black, powdery coating that develops on leaves and twigs during the cool, moist weather of late winter and early spring and fall. There are several fungi or molds that grow in the sugary dew left on plants by insects such as aphids, scale, white flies, and other insects that suck sap from plants. This honey dew or sugary substance may occur on low shrubs on which insects are not feeding but this material falls from larger shrubs or overhanging limbs of trees.

The fungi that cause sooty mold do not attack the plants directly but derive their nutrients directly from the honey dew itself. These fungi will also grow on honey dew on walls, sidewalks, fences, automobiles or anything on which the honey dew is present.

The control of sooty mold is indirectly achieved by controlling the insects that produce this sugary material. Once sooty mold has been established it is not easy to remove.

The best method is to soak affected plants in a water and detergent mixture. This can be achieved by using one tablespoon of household liquid detergent per gallon of water and spraying on these plants. Wait for a few minutes and then wash the material off with a strong stream of water. This may have to be repeated several times. Once this has been accomplished then procedures should be started for the control of the insects.

Holly

In the south holly is subject to attack by only a few disease causing organisms. Many times poor appearance of plants is often caused by improper planting, dry weather, cold weather and planting varieties that are not adapted to the area.

The amount of damage from disease on hollies can be minimized by giving plants plenty of growing space and pruning out all diseased twigs and branches as they appear.

Tar Spot: Yellow spots appear on the leaves of American and English hollies late in the spring. These later turn reddish-brown and finally, by fall, a dark black color.

If at all possible, all diseased leaves should be gathered and burned. Make several applications of a broad spectrum fungicide such as Maneb, Ferbam or a copper fungicide.

Die-Back and Canker: There are several fungi that cause die-back and canker of holly. These are usually noted as sunken areas on the twigs and stems that cause varying degrees of die-back of young twigs.

Prune and destroy all diseased twigs and begin a spray program with a broad spectrum fungicide such as Maneb or a copper fungicide. Repeat at weekly intervals until all new growth is established.

Junipers Resistant to Phomopsis and Twig Blight

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Juniper sabina	
cv.	Broadmoor
	Knap Hill
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cv.	Campbellii
var.	Fargesii*
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	Pumila

* Also reported resistant to cedar-apple rust.

Junipers

Twig Blight: Juniper twig blight, also known as Phomopsis blight, infects several species of juniper and arborvitae growing in the southeast.

Early disease symptoms consist of yellowing and dying of the scale leaves, especially the tips. This is followed by a progressive dieback of the new growth. Small black lesions are formed on the stems and cankers may form on the woody stems especially near a side branch.

In the southeast, twig blight spreads rapidly during periods of rainy, humid weather in the spring and fall. During dry weather, prune out as much of the infected branches as possible and destroy.

Research has shown some varieties are more tolerant to twig blight than others.

Protective fungicides need to be applied frequently in order to protect new foliage. In most cases the application of these fungicides can be limited to periods in which flushes of new growth occur.

Fungicides which have shown to be effective in controlling twig blight are copper fungicides (such as copper sulphate) and benomyl (Benlate). A spreader sticker should be added to the spray for best results.

Cedar-Apple Rust: Where apples and red cedar are grown together the cedars may become covered with hundreds of galls an inch or more in diameter. Infection occurs on the leaves which stimulates the development of the gall. The second spring after infection, the galls form numerous, long, yellow, tongue-like outgrowths during warm, rainy weather. The spores from these galls are spread by wind to leaves of nearby apples which may become seriously diseased and fall prematurely. The damage to red cedar is usually not that serious.

Photinia

Photinia Leaf Spot: The major problem on photinia (red top) grown in the south is *Entomosporium* leaf spot. The fungus attacks old growth as well as new succulent tissue. The spots occur on both lower and upper surfaces of the leaf and are usually surrounded by a purple to red margin. As they mature these lesions will have a gray center.

Once the disease is well established in a planting of photinia, control is sometimes very difficult and lengthy. For control to be successful, a good spray program, along with sanitation and pruning must be carried

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out. Diseased plants should be pruned in the spring just before they put on new growth. Be careful to prune out as much of the diseased areas as possible. Remove and burn any fallen leaves beneath the plant that may contain disease.

As the leaves begin to unfold, start the spray program and continue it on a 10- to 14-day schedule throughout the early part of the growing season.

Effective fungicides against this disease include Maneb, Funginex, Zineb, or copper fungicides.

Roses

Many different disease agents affect roses in the southeast. To adequately control these diseases the landscaper or grower must recognize these diseases and be able to control them either by variety selection, sanitation or chemical control.

Six Steps to Keeping Roses Healthy

1 Buy only good quality, disease-free plants from a reputable nurseryman.

2 Space plants for good air circulation.

3 Don't guess —soil test.

4 Keep roses well mulched throughout the growing season. When disease problems are severe then replace mulch annually.

5 Sanitation: Collect and burn fallen leaves in the autumn or when disease pressure is high. Prune properly in the fall or spring according to the type and variety. Destroy all prunings. Make clean slanting cuts 3 to 4 inches behind a canker, dip shears between each cut.

6 Use a good chemical control program. Use a recommended fungicide and insecticide spray at recommended intervals throughout the growing season beginning as the new leaves unfold. □

Black Spot: As the name black spot implies, the most prominent symptom of this disease is black spots on either side of the leaves. A number of other diseases cause dark spots on the leaves but you can distinguish black spot by the darker color and the fringed borders of the spots.

There is usually a great deal of yellowing and chlorosis associated with this disease. Black spot causes premature leaf drop and may result in severe defoliation of the plant. The black spot fungus may weaken plants and make them more susceptible to other disorders.

Although rose varieties may vary in their susceptibility to the fungus, no variety is completely immune. Hybrid teas are generally more susceptible than other varieties.

The first step toward controlling black spot is sanitation. If only a few leaves show symptoms these should be removed and destroyed. Since the fungus overwinters in leaves and canes, remove all diseased leaves from around the plants at the end of the growing season.

Before new leaves appear in the spring remove and burn old mulch and replace with fresh mulch.

A regular spray program throughout the growing season is usually necessary to control this disease. You may use one of the several fungicides including Maneb, Moncozeb, benomyl, chlorothalonil or funginex. All give acceptable control of black spot if applied on weekly intervals during the spring and at 2-week intervals during the dry part of the summer.

Once plants become severely infected, the fungicides are of little value other than keeping the disease from spreading, therefore, regularly spraying and thorough coverage are important.

Die-Back and Stem Canker: Die-back and stem canker are really a complex of diseases since they are caused by several different types of fungi. However, identifying these diseases is not of great importance since the control is very much the same for all.

The die-back phase of the disease appears as a black sunken lesion that causes death of the terminals of the cane. Die-back normally gets established through wounds.

When pruning be sure to dip all pruning tools in a 70% solution of denatured alcohol or household liquid bleach diluted one part bleach to four parts water.

The fungicides that are effective in controlling black spot will also control die-back and canker.

Powdery Mildew: A white powdery fungus growth on the surface of leaves, buds, or stems of roses usually indicates powdery mildew. Infection on young leaves may cause curling and sometimes a purple discoloration.

Badly infected flower buds do not open properly. Most of the sanitation procedures for the control of other rose diseases are also valuable in controlling powdery mildew.

When this disease is a problem spray dormant plants with commercial lime sulfur (1:15).

During the growing season you can hold powdery mildew in check by spraying with benomyl, dinocap (Karathane), cycloheximide (Acti-dione), or wettable sulfur. Be sure to add a spreader sticker and follow label directions closely.

Black spot fungi overwinter in leaves and canes of roses. Remove all diseased leaves from around the plants at the end of the growing season.

Viruses: There are several virus diseases that attack roses in the south. The type of symptom expressed will depend upon the type of virus present.

Some of the mosaic viruses will cause pale to bright yellow spots to occur on the leaves. Occasionally ring spots will occur or some type of light yellow zig-zag pattern across the leaf. Also, the mosaics will result in a puckering of the younger leaves.

Some of the streak viruses will produce a brown to reddish ring pattern in the leaves. Brown or green rings may also occur on some of the canes.

Generally speaking, the viruses cause very little loss of plant vigor or affect flower production. The major problem is with discoloration and deformity of the foliage.

Occasionally symptoms may be masked during hot weather. Infected roses should not be used for budding or grafting. Propagators can use heat treatment of root stock to rid the plants of most viruses.

If virus symptoms do occur on established plants, severe pruning may rid the plant of the virus. If this is not successful, then it is best to remove the plant since the virus may be transmitted to healthy plants either by pruning instruments or by insects. **WT&T**

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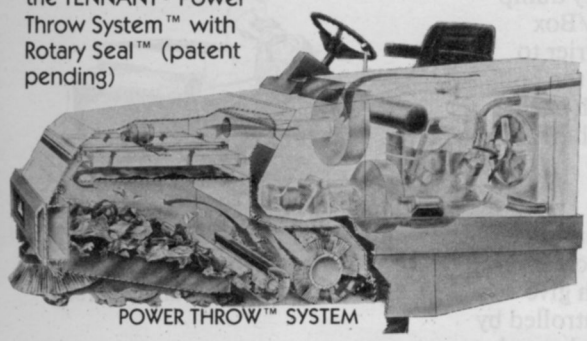

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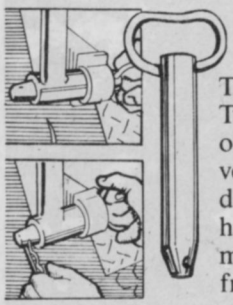

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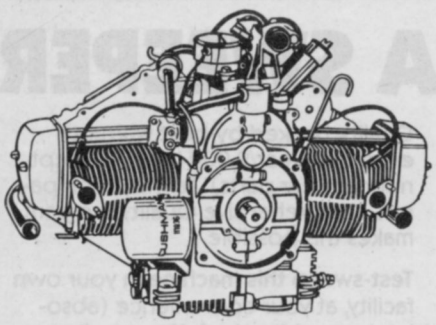

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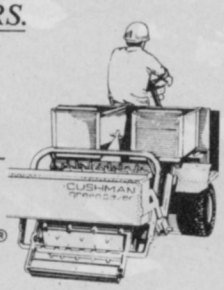

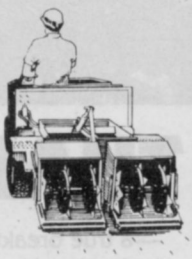

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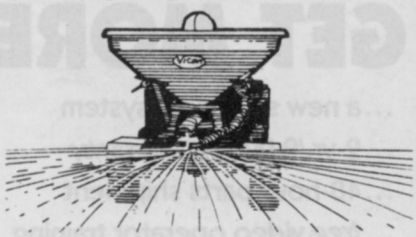

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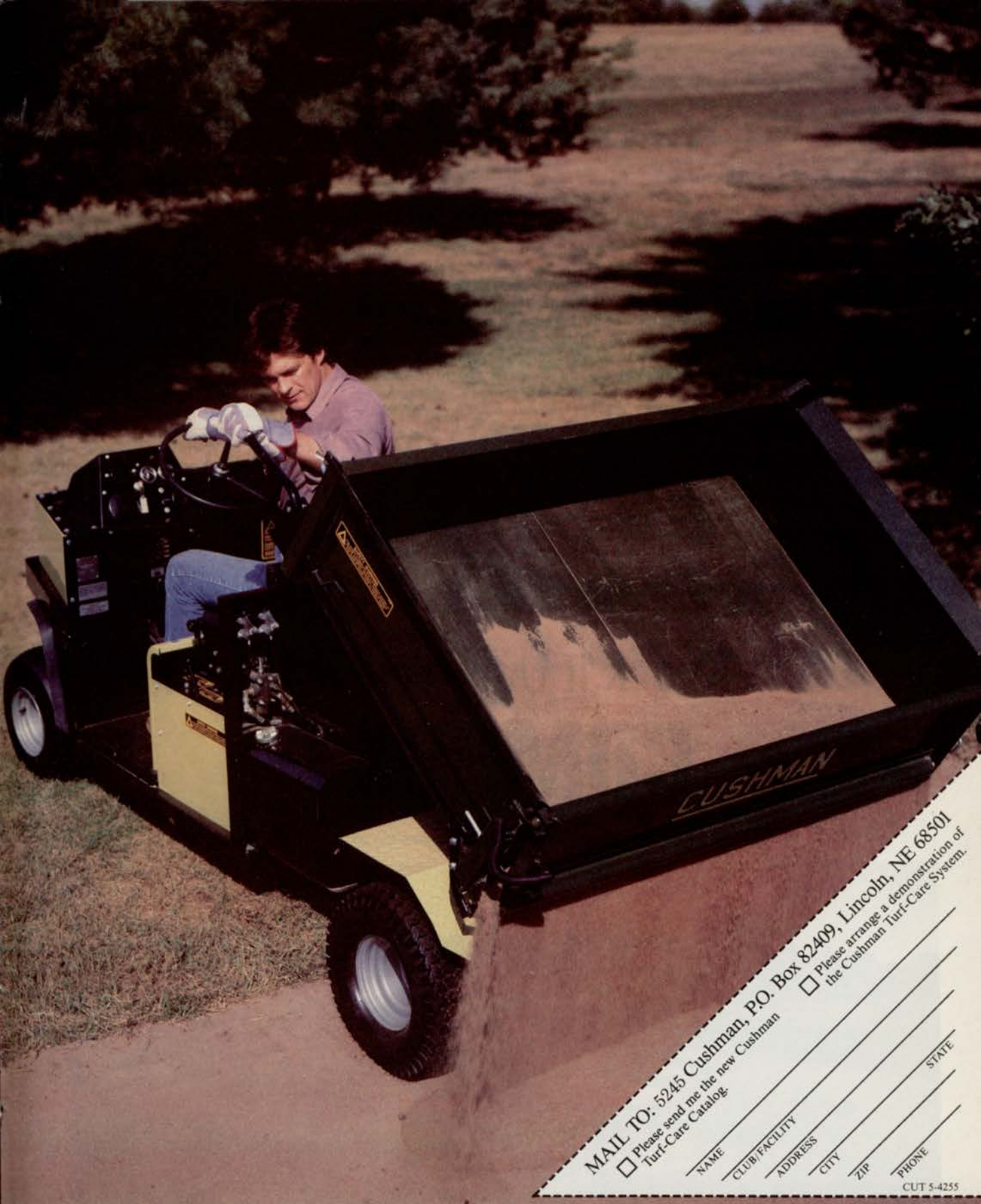

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Large scale composting

In the late 1960s Stanley Bulpitt of Darien, CT, began large scale composting of leaves. This eliminated a municipal leaf disposal problem and, at the same time, provided an outstanding humus which was used to enhance greenhouse and prepared soil mixes.

Bulpitt has long recognized the value of leaf mold compost and he's used it in his commercial operations.

In the early 70's, the United States Government, the state of Maryland, and the Washington Suburban Sanitary Commission realized there was a growing problem with sludge disposal within the United States and simultaneously decided to investigate composting as the answer to this problem. To this end, they committed millions of dollars to determine whether a composting process was applicable and whether it would be a process that could work throughout the United States.

Over a five to seven year period, the **Beltsville Process**, as it was named, was developed. This process met the criteria that had been established at the beginning of the program, i.e., it would use large amounts of sludge as a raw material, would produce a high quality product, and could be done almost anywhere in the United States. It was a large scale process that was practical, safe and reliable.

The compost made from this process has many potential applications; in short, the Beltsville Process solved many problems.

After the Beltsville method was established, the United States Department of Agriculture, and the University of Maryland spent several years in determining that sewage sludge compost was suitable for a variety of horticultural applications, including greenhouse work. One outcome of the work was a USDA bulletin entitled "Uses of Sewage Sludge Compost for Soil Improvement and Plant Growth," publication number ARM-NE-6.

Dr. Francis Gouin of the University of Maryland has also published his research in a number of papers and articles. These publications address various utilizations and their optimum application rates; all of these publications are available from any major compost marketing group and/or the Department of Agriculture, Beltsville, MD.

There are today several popular methods of producing compost; most of these methods have evolved from

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COMPOST

by N. Grove Teates, compost manufacturing and marketing consultant, Wheaton, MD.

Grade one compost *can be used as a topdressing for turf at ¼- to ½-inch deep, preceded by double aerification and followed by single aerification and dragging.*

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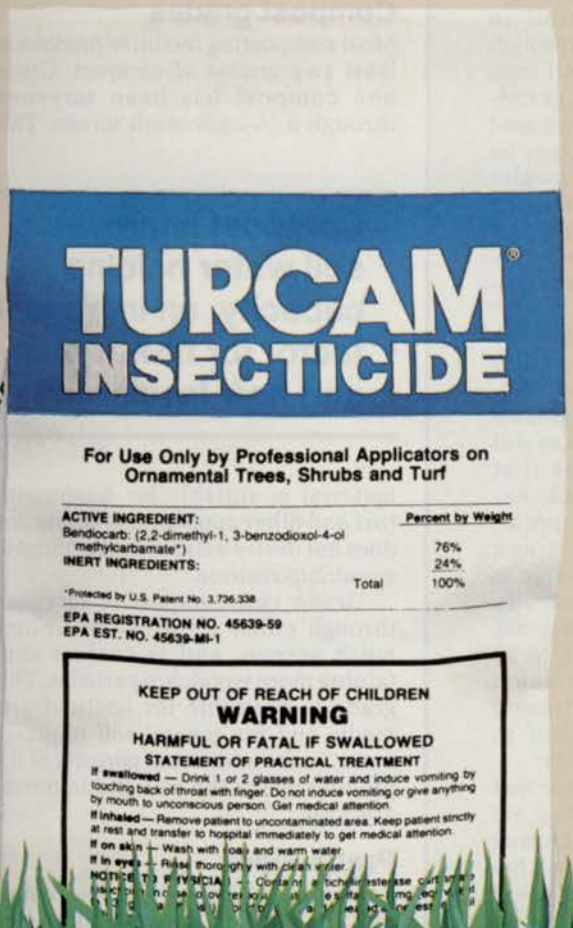

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Consider Compost Advantages

There are many advantages of using compost in the soil mix to enhance growth. Consider the following:

A Compost provides humus, and to some extent, fertilizer. This combination tends to raise the cation exchange capacity in the medium and makes fertilizer already present in the medium more available to the plants. The net overall effect is that the fertilizer requirement for the medium is reduced considerably.

In some cases, golf courses using compost have reduced their fertilizations from four to two applications per year. This represents significant savings.

B Some compost may contain lime and have a fairly high pH. This reduces the need for purchased lime on some jobs. Some composts have tremendously high buffering capabilities and are used where there is very acid leachate or acid water which needs an offsetting element.

C Compost adds a lot of humus to the soil at a reasonable cost. Of course, humus content of the soil is a great factor in limiting the tendency of soils to pack. It has been observed in some governmental lawns, which have been topdressed over the years with compost, that are almost impossible to pack. This is extremely good for grass which must be grown in harsh locations.

D Compost hastens seed germination time significantly. This may eliminate the need for sod, which might otherwise be installed to produce green rapidly. Cases have shown with favorable moisture and temperature, and compost addition to a seed bed, fescues will germinate within five days and may be 2-inches tall in two weeks.

Frank Bowman, superintendent of Golf Courses in Springfield, OH, had Columbia Bluegrass which germinated in much less time than expected, which was pleasing to all concerned. Because grass germinates so quickly when compost is added to a seed bed, it may be necessary to sod only swales and other waterways for erosion prevention. Significant areas of disturbed land have been reclaimed in this manner at a reasonable cost.

E Compost helps maintain the color of grass as the temperature drops in the fall and winter. This "green effect" from grasses is important in that it makes golf course superintendents that have used compost look extremely good; their tees, aprons, and fairways may be green when the rest of the course is brown. It has been generally noted that the color of grass holds until a 15 degree F to 20 degree F temperature condition is established, when the treated grass begins to brown off to match surrounding grasses.

It is at this time of the year that the quality of the spreading job becomes most evident. During the winter months, skips will become extremely evident and will look like brown streaks put on an otherwise green background.

F Compost gives grasses drought resistance. This was much evidenced in the summer of 1983 when a drought made irrigation a necessity to produce green grass. Grass which had been topdressed heavily with compost withstood the lack of moisture much better and retained its color much longer.

In esthetics alone, compost was cost effective. □

the basic Beltsville Process.

Generally, a sludge which is very similar in appearance to brick mortar is mixed with a bulking agent. This bulking agent, usually woodchips, serves to allow air to filter down through the composting mass. The mixing of the woodchips allows bacteria within the pile to breathe oxygen and multiply. This bacterial activity creates an elevated temperature which over a period of time pasturizes the pile and kills pathogens, digests the sludge, and leaves a humus which is called compost.

After the composting process is complete, the pile is then broken down and remixed and recomposted to insure that all the contents of the pile reached at least 55 degrees C, which assures pasteurization. Then the woodchips are removed from the pile by screening. The woodchips are used again in the composting process and the screened compost is ready for sale/distribution.

Compost grades

Most composting facilities produce at least two grades of compost. Grade one compost has been screened through a 1/4-inch mesh screen. This material is suitable for topdressing turf and other applications where one does not desire a significant amount of woodchip residue.

Compost improves soil water holding capacity, an important factor for flower beds and new lawns.

Grade two compost is screened through either a 3/8-inch or 1/2-inch mesh screen, and is coarser containing more woodchip particles. This grade is desirable for horticultural media and for general soil improvement, as the additional porosity of the product opens the soil and improves drainage.

Precautions

Regardless of the type of composting process, there are several things to remember.

First, the product must be pasteurized. This eliminates the possibility of serious health problems arising from the use of sludge compost. Compost is currently widely used in vegetable gardens and other sensitive locations throughout the United States.

Compost, in order to be considered stable, must be almost biologically inactive. If the microbes are active in the compost, usually evidenced by heat generation, then one can suspect that the compost is not mature, but "green" compost. It is desirable to use mature compost, because mature compost will release nitrogen.

If the product is green compost or only partially composted, then it is in a nitrogen gathering stage and will produce negative results when applied to plants in general.

The compost should be aerobic, not anaerobic. Aerobic means that the compost has been made by a tech-

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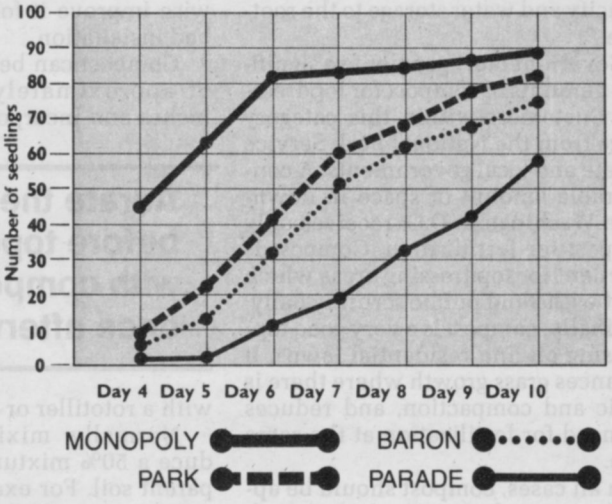

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nique utilizing oxygen breathing bacteria. If the composting process is anaerobic, then there is considerable odor associated with it and the compost is undesirable for most applications.

Anaerobic material can be changed to aerobic material by proper composting techniques. Under all conditions, the compost must be clean of foreign debris, uniform throughout, and free of weed seed.

Compost moisture is another important consideration; the moisture of the product should be in the range of 50 percent or below, or else it will have a tendency to clump together and difficult to apply.

Compost benefits

Compost has many practical uses. Among the most important is as a topdressing material for established turf.

Considerable amounts of compost are used for commercial areas where compaction is a problem (i.e., apartment complexes, condominiums, parks, and heavy foot traffic areas). All athletic fields fall into this category.

The porosity of the fi1 compost opens compacted soils as well as adds humus to them. Humus provides chemical buffering capacity and water storage to the root-zone.

Governmental agencies use significant amounts of compost for topdressing. Customers within this category range from the National Park Service to state and local governments. A considerable amount of space in downtown Washington, D.C. receives only compost for fertilization. Compost is excellent for topdressing areas which must withstand public scrutiny daily.

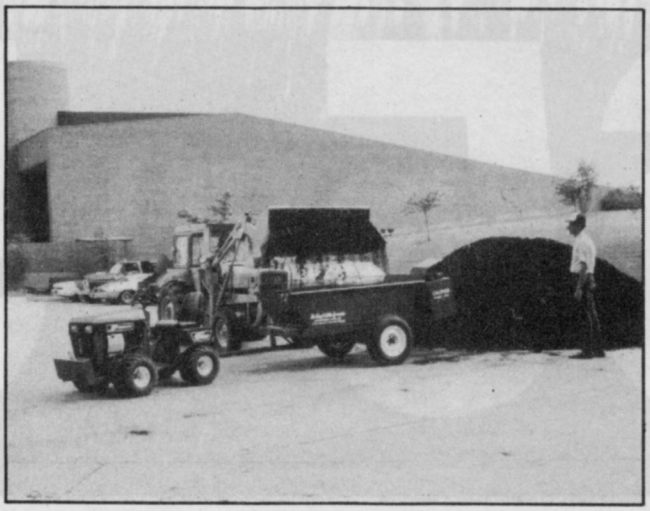
Finally, compost is a very good topdressing on fine residential lawns. It enhances grass growth where there is traffic and compaction, and reduces the need for fertilization at the same time.

In all cases, compost should be applied at a rate from 1/4-inch to 1/2-inch thick for topdressing. It is strongly recommended that the soil be aerated at least twice before and once after the application of compost. Aeration tends to eliminate layering of compost on a given soil. Also, like any topdressing, it is helpful to use a drag to break up compost clumps and soil cores and blend them into the turf. After topdressing is complete, the turf can be overseeded.

Compost must be applied as carefully as other topdressing materials. Skips will become evident normally within 10 days.

Compost should be applied with a spreader if possible, in one direction at half the intended rate and then at half the rate at a right angle to the first application. This practice eliminates skips.

Compost can also be used in construction of new lawns and seed beds. Often after a building is completed, sub-soil is the only real soil medium that exists. At this stage, the landscaper must either bring in topsoil to augment the sub-soil and/or otherwise improve it for lawn and flower bed installation.



Bulk compost *should be protected from rain during hauling and storage for proper handling texture.*

Compost can be spread at a depth of approximately 1-inch to 1-1/2-inches and incorporated into the soil with a rototiller or a disc.

Aerate the soil twice before topdressing with compost, and once afterward.

Normally, mixing ought to produce a 50% mixture of compost and parent soil. For example, if 1 inch of compost is applied, the mixture is cut into the native soil 1-inch deep.

The addition of compost to this soil enhances grass seed germination and may reduce the amount of fertilization needed for a new lawn during the first year, and sometimes for the second year.

In annual and perennial beds, compost depths of up to 2-inches may be mixed into the native soil. This produces a humus-rich growing medium; the expected results are that plants will bloom earlier and hold their blooms longer than they would in a soil which was augmented only with commercial fertilizers.

Compost also increases soil water holding capacity, an important factor for flower beds and new lawns. Because compost amended media holds water better, plants growing in those media are more drought resistant.

Compost greatly reduces the cost of greenhouse container mixes: even if a grower is currently using commercially prepared mixes, the addition of compost to these mixes can reduce their cost and enhance the plant growth.

Researchers at Ohio State University, at the University of Maryland, and elsewhere are indicating that the compost addition to the currently used mixes generally increases profits. This is extremely important to cost-conscious operators today.

An additional benefit that is now being studied is the addition of compost to growing media, up to 50 percent by volume, appears to have a fungicidal effect that reduces or eliminates the need for drenching for fungus in greenhouses.

Again, a cost savings is realized by the greenhouse operator. The bottom line is that compost amended soil media produces hardier plants within the same time period or the same size plants within a significantly shorter period than do standard growing media. Again, there are savings associated with these characteristics.

More and more compost is being produced throughout the United States. Right now, up to 50 cities are currently building or already have compost plants. Within the next five years, the availability of compost will grow drastically and many landscaping and related industries will have the opportunity to use it. Compost is generally very reasonably priced, at topsoil prices or below.

Organizations selling compost spend the majority of their time educating their users to reduce trial-and-error risks. Once the public is educated to the product and has used it one time on a trial basis, they're usually hooked.

The bottom line in either greenhouse or landscape and/or residential use is that compost produces results while saving money. Nothing gets our attention as well as money in the bank. **WT&T**

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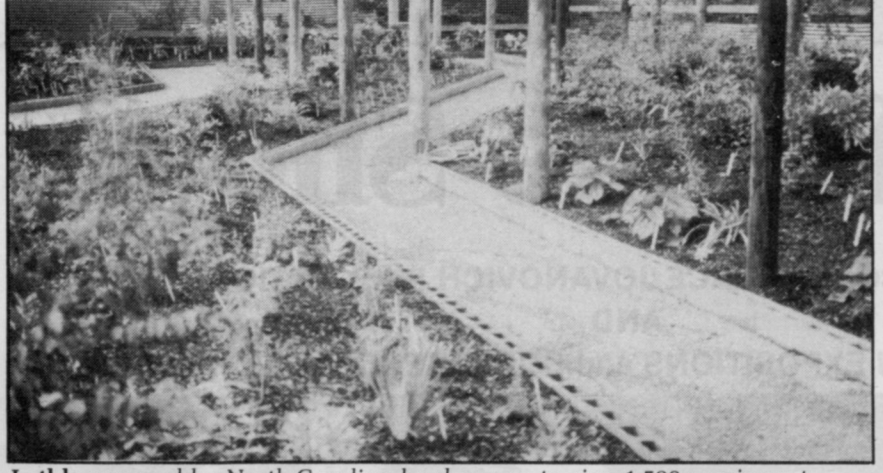

Lathhouse *enables North Carolina landscapers to view 1,500 species not usually found in the state.*

ARBORETUM *from page 31*

While most arboreta try to grow the perfect, large specimens, Raulston philosophy of plant management is diversity. From rhododendrons to large trees, his intent is to grow them for a few years and when they become too large, remove and replace them with small plants again.

Plans have already been developed with the campus landscape architect to move the entire magnolia collection to a place where these trees can achieve maturity after they have grown at the arboretum for a few more years, and the dwarf conifer collection may soon be decorating the front of the horticulture building. In the meantime, all of this material has been propagated by students so that small replacements are available.

Education for the market

Raulston works closely with Dr. Ted Bilderback, associate professor of horticulture at the university. Bilderback has been teaching an arboriculture course which he restructured this past year, and it is now presented as a total maintenance course. The department has found that maintenance offers the most jobs for its graduates and the most lucrative, so the emphasis has shifted in that direction.

The horticulture department offers a degree in ornamental horticulture and also one in landscape horticulture, but Raulston says that today many of the students opt for a double major, so they are prepared to handle everything from small liner plants to huge trees—including production, sales and maintenance.

The department's staff builds economics into all the teaching programs. For example, in the grounds maintenance course, there is an entire section on figuring the real costs of items like labor and machinery—and teaching the students how to estimate and bid on jobs. In the nursery production course, each student must do a thorough financial work-up on a complete nursery operation—the land, equipment, labor, supplies, sales and marketing costs. Raulston has seen several students take these analyses to banks, receive loans and start their own businesses. The emphasis at NCSU today is on developing skilled plantsmen who are also practical businessmen and women, ready to compete in the real world beyond the university. **WT&T**

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Harold Yuker is Provost of Hofstra University. He has cerebral palsy.

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PROBLEM SOLVERS

by **Balakrishna Rao**, Ph.D., Davey Tree Expert Co., Kent, OH

Chinch bug alternative

Problem: *This year we had serious problems with chinch bugs. We have used diazinon in the past as well as this year and had variable results. Are there any better products on the market which we can use next year? I would appreciate your comments in this regard. (Pennsylvania)*

Solution: I agree with your observations and experience. I have also seen chinch bug problems in many lawns this summer. By the visual symptoms, the problem can be misdiagnosed as disease or drought.

However, upon closer examination of the affected areas, particularly the thatch, a large number of chinch bug nymphs as well as adults may be found. Reports indicate that these destructive, sucking insects can build up in numbers very quickly because of their potential to lay 312-766 eggs per female. Both nymph and adults feed on turfgrass and are highly mobile; therefore, they can relocate readily.

For successful management of chinch bug problems, it is important to correctly identify the problem first, and then apply recommended insecticides when the pests are active. In your area chinch bugs usually have two generations.

The first generation of chinch bug matures in mid-summer and produces a second generation that continues to feed and develop until the weather gets colder. The variable results you have experienced with diazinon treatments may be related to improper timing and/or the product performance itself.

Reports from Penn State University indicate that diazinon - AG500 gave 75.5 percent control, while Dursban provided 93.7 percent control. Therefore, I would suggest you consider trying Dursban.

Aeration will help

Problem: *We are dealing with a number of landscape plants which are subjected to heavy traffic and compaction over the root area in several properties. Soil types around the trees could all be classified as clay-loam. These soils tended to be compaction prone and heavy in texture. Fertilizing or irrigating these plants presents a serious problem. Surface runoff of water and fertilizer which is difficult to soil inject are among our major concerns. Any suggestions to dealing with the problem is appreciated. (New York)*

Solution: Correction of soil compaction presents a major problem where heavy traffic is unavoidable. Whenever possible the compacted surface area within the drip-line of trees should be aerated by removing soil cores to improve air, water and nutrient movement. If desired, these areas can then be topdressed with coarse sand. Reports from Massachusetts indicate that, when dealing with compacted soils, the use of wetting agents such as Aqua-Gro at 1 oz. per 3 gallons (Aquatrols Corporation of America) can reduce surface runoff problems.

Creeping bent the culprit

Problem: *Creeping bentgrass presents a serious problem in many Kentucky bluegrass lawns. Would you please suggest some guidelines to follow in dealing with this problem. (Ontario, Canada)*

Solution: Kentucky bluegrass lawns are susceptible to contamination from creeping bentgrass, which spreads by stolons and produces roots at the nodes.

It starts as a small patch and begins to establish in lawns which were usually cut very short and received good irrigation. Once a Kentucky bluegrass lawn has become contaminated, it is very difficult to eradicate it completely.

Any lawn maintenance program which would inhibit bentgrass and favors other desireable grass is suggested for its control. The most important factor is controlling the amount of water applied. Heavy or frequent watering practices favors seed germination and seedling establishment.

Even under low mowing and heavy watering practices, bentgrass plants produce more surface rooting than bluegrass. By withholding water until the deep-rooted Kentucky bluegrass plants show drought symptoms, the more shallow-rooted bentgrass will be stressed. This stress inhibits bentgrass. The bentgrass will turn brown and will allow bluegrass plants to dominate. Another factor to consider is the removal of clippings. Broken stem pieces should be removed during mowing because, if the conditions are favorable, they can establish in new areas. Vertical mowing to break the stolons and removing them also is beneficial in managing the problem. Vertical mowing may be done at any time during the months of May, early June, September and October, but should not be done during July and August because of high temperatures. After vertical mowing, the area can be seeded with desirable grass seed. There is no product on the market which would selectively remove bentgrass from a Kentucky bluegrass lawn. Some reduction of bentgrass can be obtained by the application of Killex (Trimec) or 2,4-D herbicides applied two to three times during the growing season.

Remember that whenever these herbicides are used in lawns, there is a possibility of some adverse effects on desirable grass roots. Therefore, multiple applications should be done with this reservation.

Balakrishna Rao is Director of Lawn Care Technical Resources for Davey Tree Expert Co., Kent, OH.

Questions should be mailed to Problem Solver, Weeds Trees & Turf, 7500 Old Oak Boulevard, Cleveland, Ohio 44130. Please allow 2-3 months for an answer to appear in the magazine.

LANDSCAPE LOG

by the Editorial Advisory Board, *Weeds Trees & Turf* magazine

Transition, cleanup dominate March

Six experts willingly share their knowledge with Weeds Trees & Turf readers. Please write the magazine if there are specific areas of landscape management you would like addresssed on a monthly basis.

March is a month of transition no matter where you work.

In the Southeast, overseeded cool-season grasses are surrendering to native warm-season turf as temperatures reach the 80's. Preemergence herbicides should have been applied in late January and February, but final applications may be in order says Bruce Augustin. Application of a complete fertilizer (including potassium and micronutrients) is appropriate at this time to help the bermuda, St. Augustine, bahia, or centipedegrass. Augustin does not recommend application of preventative insecticides because of insect resistance to organophosphates experienced the past few years.

Power raking *or verticutting is a common March practice to remove thatch, debris, and leftover snow mold.*

Calibration of irrigation systems is strongly advised for March as temperatures climb. You need to know that your system is putting down one-inch of water upon initial signs of wilt. After irrigating, wait for wilt symptoms again before irrigating. Augustin says turf diseases are not as much a problem in the late winter as in the fall. Mowing programs should be in full swing by March.

As cool-season turf fades, so do the annual beds which provided color all winter. Mulch the beds to prevent serious weed encroachment until next fall.

Great Plains landscape managers contend with left over snow mold and start cleanup in March. Robert Shearman recommends power raking, aerification, seeding, and initial mowing of turf. Look for overwintering sod webworm larvae. Prepare for late March or April applications of fertilizer and preemergence herbicides.

Trees and ornamentals should receive dormant oil sprays in March for scale insects. Spray sycamores for anthracnose and spruces for gall aldegids. Prune winter-damaged branches, wrap up transplanting work, and fertilize perennials.

Make sure you have the needed chemical and equipment inventory for the upcoming busy season. Carefully check all irrigation and spray equipment for accuracy.

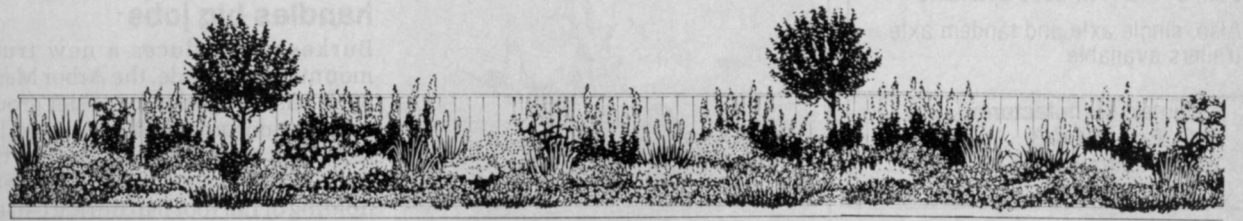
Midwest landscape managers should begin their insect control programs late in the month says Harry Niemczyk. Preventative treatments for grubs, chinchbugs, and billbugs should be made to susceptible areas. Check for mite damage.

Remove winter protection and remulch plantings in March says Doug Chapman. Bare root planting can begin. Prune out winter damage in trees and cut down deciduous shrubs for rejuvenation. Do not prune shrubs which flower on old wood.

Northeast deciduous trees should be pruned to remove fire blight damage says Martin Petrovic. Sodding can begin and soil ammendments can be applied. Watch for initial symptoms of leaf spot disease and white grub feeding.

Purchase fungicides for leaf spot, stripe smut, and red thread. Check supplies of preemergence herbicides for crabgrass and postemergence broadleaf herbicides. All mowing and cultivation equipment should be ready to go.

Editorial Advisory Board members are: **Bruce J. Augustin**, extension turf and water specialist, University of Florida, Fort Lauderdale, FL; **Douglas Chapman**, horticulturist/director, Dow Gardens, Midland, MI; **Kent Kurtz**, professor of horticulture, California Polytechnic Institute, Pomona, CA; **Harry Niemczyk**, professor of entomology, Ohio State University, Wooster, OH; **Martin Petrovic**, assistant professor of turfgrass science, Cornell University, Ithaca, NY; and **Robert Shearman**, associate professor of turf, University of Nebraska, Lincoln, NE.



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PRODUCTS

Brouwer introduces new sod cutter

The Brouwer Mark 2 sod cutter is a snap to transport because it features adustable fold down handles and its weight has been decreased to 175 lbs. It is available in 12 and 13-in. widths of cut. New dethatcher, edger, and turf stripper blades are optional. The

thickness of cut is quick and easy to adjust with the Mark 2. The sod cutter comes equipped with a 5-hp engine.

Circle No. 190 on Reader Inquiry Card

Two new rammers from Ditch Witch

Ditch Witch has introduced two new lightweight, hard-hitting gasoline rammers, the DR-50 and the DR-65.

The DR-50, a 3.3 hp rammer has an operating weight of 115 pounds and delivers a maximum impact of 1,750 pounds. The DR-65 is a 4 hp rammer with an operating weight of 150 pounds, delivering a maximum 2,400 pounds of impact.

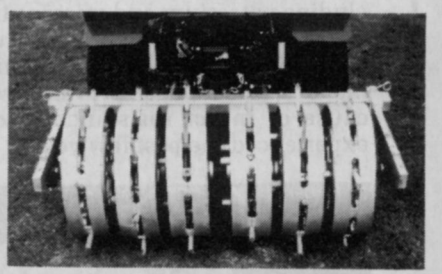
Both units feature solid steel handles to help protect major components, simple electronic ignitions, oil-bath lubrication and heavy-duty spring boxes for maximum impact.

The DR-50 has a 6.5 by 13 inch shoe size, the DR-65 has a 11.2 by 13.3 shoe size. Both feature 27 wood laminations, with a tempered steel plate for long life and shock absorption.

Circle No. 192 on Reader Inquiry Card

Crane aerifier heavy-duty unit

The new pull-behind aerifier by Earl J. Crane is a heavy-duty, drum-type aerifier for commericial use. The heavyweight pull-behind models can be expanded or narrowed depending on the need. Crane is expected to have a walk-behind version of the aerifier this spring. The tines of the Crane aerifiers can be stored in an up position for turf rolling or for travel.



Circle No. 191 on Reader Inquiry Card

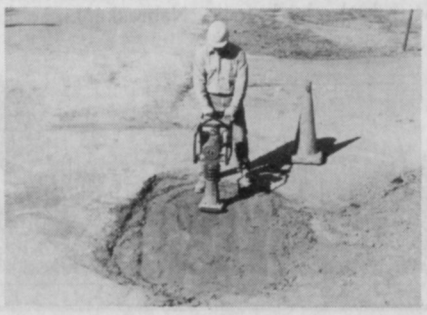
Say adios to weeds with De Witt fiber

De Witt's Weed Barrier, a needle-punched fiber, is the answer to keeping weeds out and letting moisture in. The woven, flat, ribbon polypropylene is superior to polyethylene and other plastic films because it is permeable, durable, and permanent.

Although it will not puncture or tear during installation, it can be cut with regular household scissors. The Weed Barrier will not rot, mildew, or decompose either. As a superior mulch, it allows for more plants per area. It can also be used as a soil seperator and as a ground cover fabric.

It is available in rolls and in attractive retail display cartons in a variety of widths from 36 to 188 inches.

Circle No. 195 on Reader Inquiry Card



Burkeen tree spade handles big jobs

Burkeen introduces a new truck-mounted tree spade, the Arbor Master 65. It has six spades for easier ground penetration and a 4,000-lb root ball for less root damage and better tree livibility. The six spades allow better holding of the root ball during ball and basket operations. The controls are

GET THE FEELING THEY KNOW SOMETHING YOU DON'T?

They do. It's their job to know things first and then pass that information on to you fast. Things like new turf management techniques, effective methods of insect and weed control, what really works . . . and what won't.

LOOK FAMILIAR?

They should. You've seen them often at turf shows, seminars, conventions, wherever industry news is in the making. They're the editorial and sales management team of ***WEEDS TREES & TURF.*** Please meet (seated l. to r.) Ron Kempner, Bruce Shank, Dick Gore, and Maureen Hrehocik; (back row l. to r.) Bob Mierow, Kevin Cooney, Joe Kosempa, and Bob Earley.

THERE'S NO GRASS GROWING UNDER THEIR FEET.

They apologize for not always being in when you call, but great stories are found in the field, not in the office. These pros know the only way to really cover the green industry is to get out and be a part of it. From turf test plots in Oregon to the corridors of our Nation's Capital, they're following leads, surveying markets and interviewing the landscape professionals who make our industry hum. Then, they use their years of experience to pull it all together, analyze it and present it to you in a crisp, easy-to-read and easy-to-use style. That way, you have the information you need to do your job better, faster and more effectively.

The next time you want to know something in the green industry, give them a call. If you can't reach them at the office, don't worry. They'll reach you in the pages of ***WEEDS TREES & TURF.***

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ROTHWELL SEEDS LTD.
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All★Star‡

PERENNIAL RYEGRASS

★ Resists sod webworm and other insects

★ Resists brown patch, leaf spot, crown rust

★ Germinates within 7 days

★ Grows in sun and shade

★ Excellent mowing quality

★Need more be said?

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simple to operate and are located for optimum visibility and safety.

Circle No. 198 on Reader Inquiry Card

Echo unveils new mid-range chain saw

Echo's new mid-range chain saw, the CS-440EVL, weighs just 11.2 pounds, yet packs a 44.3 cc single cylinder, two-stroke, air-cooled engine.

It features a double air filter to ensure long engine life and an excellent anti-vibration system so operators can work the saw longer with less fatigue. Other features include a diaphragm type carburetor, maintenance-free electronic ignition, and newly designed guide bar with double spike bumper for extra protection. Echo markets complete lines of gas-powered chain saws, weed and grass trimmers, brushcutters, hedge trimmers, power blowers, and backpack sprayers.

Circle No. 196 on Reader Inquiry Card

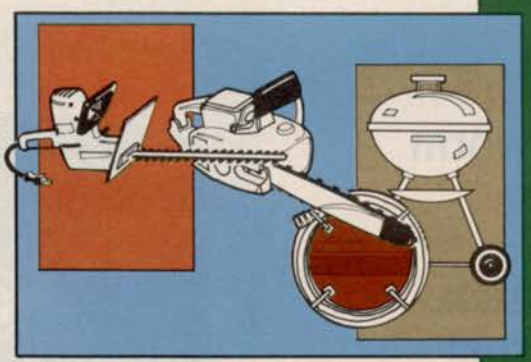
Setting the Pace for Your Profits!

We jumped from the gate in 1984!

Now we're really SETTING THE PACE FOR YOUR PROFITS

. . . at the International Lawn, Garden & Power Equipment EXPO 85

. . . **July 29-31** at the Kentucky Fair & Exposition Center in **Louisville.**



The savvy lawn & garden buyer will win by a mile at EXPO 85 with **more exhibitors . . . more variety . . .** and **more manufacturers** already planning to be at EXPO 85.

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PO Box 37130 Louisville, KY 40233 USA

Please send complete registration information to:

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Title

Company / Organization

Street Address

City State Zip Code

F1F4A25

Circle No. 125 on Reader Inquiry Card

Worksaver spreader an adaptable unit

A trailer-mounted seeder/fertilizer is now being offered by Worksaver. The TMES-3 spreader can be used with garden tractors, ATV's, golf carts, or pick-up trucks. The unit's capacity of three bushels can be increased to six or eight bushels with the installation of optional side extensions. An adjustable slide gate provides control of seed or fertilizer coverage. Dimensions of the trailer are 60 in. wide and 60 in. long. It comes complete with two high flotation tires, clevis hitch, and battery box (battery not included). The seeder's 12-volt motor can also be wired into the vehicle's electrical system.

Circle No. 195 on Reader Inquiry Card

Buckner strengthens controller offerings

The M-12DD and M-24DD are Buckner's latest additions to its mechatronic family of controllers.

UNWANTED GRASSES IN BERMUDAGRASS AND HOW TO BOOT THEM OUT.

It may be a grass but if it grows where you'd just as soon it didn't, it's a weed. The tricky part is to kill it without killing your bermudagrass.

®SENCOR 75 Turf herbicide does the trick. It takes out goosegrass and annual bluegrass *(Poa Annua)*, but leaves your bermudagrass alone.

Just apply SENCOR to your established, actively growing bermudagrass turf. Use it anytime, *before* unwanted grasses emerge or *after* they're showing.

SENCOR, applied to dormant bermudagrass, will take out most broadleaf weeds and, when tank-mixed with MSMA, will control crabgrass, barnyardgrass, and others.

SENCOR is hard on unwanted grasses and weeds, easy on bermudagrass.

Unwanted grasses, a serious problem with a serious solution. SENCOR. Always read the label before use.

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WHEN YOU'RE SERIOUS ABOUT UNWANTED GRASSES.

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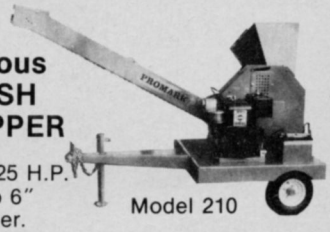
PROMARK EXPANDS!

Famous "Little David" STUMP GRINDER

Works fast, goes through 30" gates. 3 models.



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Up to 25 H.P. cuts to 6" diameter.

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Mounts and dismounts from pick-up truck in less than 15 minutes. Working height 38'.

***NEW!* ELECTRIC LIFT TRUCK**

Versatile — Up to 30' working height.

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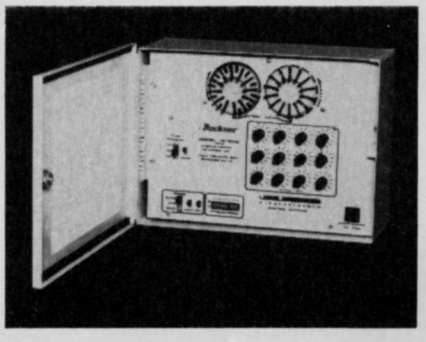
The DD stands for double dual which makes programming flexible. Each station can be assigned to either program A or B, and each program has its own start time. By merely flipping a switch, program A or B is selected. There is no need to readjust each dial every time an irrigation schedule has to be modified.

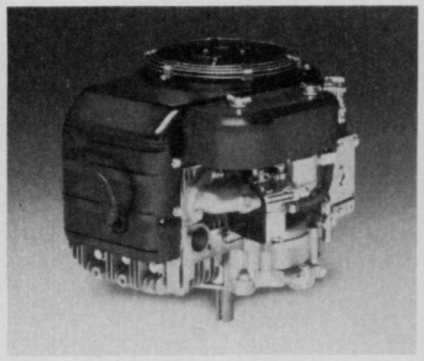


The DD controllers also have the "Time Multiplier Switch" for seasonal adjustment. With 50, 100, and 200 percent settings, the time per station can be cut in half, remain the same, or doubled. LED indicators show which station is operating. The M-12DD and M-24DD have a combination solid-state and electro-mechanical components, and come standard with lightning protection on the input and each output of the valves.

Circle No. 197 on Reader Inquiry Card

Kawasaki introduces new engine

Kawasaki introduces an advanced vertical shaft engine with 12.5 hp designed for the lawn and garden market. It features electronic ignition, dual-element air cleaner, and pressurized lubrication. The new FB460V has a reciprocating balancer for quieter operation with less vibration.



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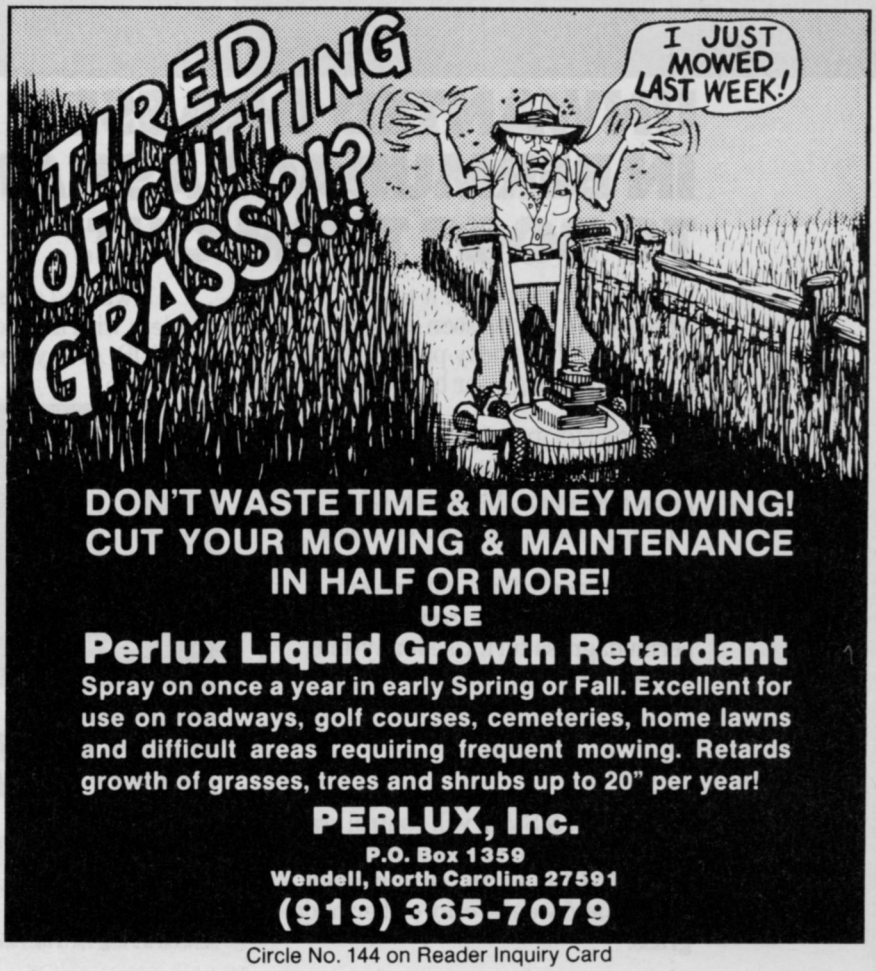

DON'T WASTE TIME & MONEY MOWING!
CUT YOUR MOWING & MAINTENANCE IN HALF OR MORE!
USE
Perlux Liquid Growth Retardant

Spray on once a year in early Spring or Fall. Excellent for use on roadways, golf courses, cemeteries, home lawns and difficult areas requiring frequent mowing. Retards growth of grasses, trees and shrubs up to 20" per year!

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This "crew" should be working for you

the sprayer . . .
160 gal. poly tank, 3-section boom for 18-1/2 ft. coverage. Spray with 1, 2, or all 3 booms. Fingertip control of all spray system functions.

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Hydraulically controlled from operator's position. Cultivates a full 42 inch width. Cleanly penetrates to 3 inches, depending on soil conditions. Optional Slicing Blades to open the soil with a minimum of turf disturbance.

the spreader . . .
Precise rate settings for a uniform pattern. Top dress sand in 12 to 20 ft. swath, apply seed, fertilizer and lime 20 to 40 ft. Up to 500 lbs. per minute.

the utility truck bed . . .
Reinforced steel, 1500 lbs. capacity. Converts to dump bed with addition of Hydraulic Package.

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See the Keystone Cops
at the
Buckner
Booth #681 at the
GCSAA show in
Washington, D.C.
bringing the best

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EVENTS

MARCH

CMAA Annual Exposition, March 4-5. Hotel Inter-Continental, Houston. Contact Karen Watkins, 7615 Winterberry Place, Bethesda, MD 20817. (301) 229-3600.

Midwest Regional Turf Conference, March 4-6. Stewart Center, Purdue University, West Lafayette, IN. Contact W. H. Daniel, Department of Agronomy, Purdue University, W. Lafayette, IN 47907. (317)494-4785.

Massachusetts Turfgrass Conference, March 5-7. Massachusetts Civic Center, Springfield. Contact Dr. Joseph Troll, Plant & Soil Sciences, Stockbridge Hall, U. of Mass., Amherst, MA 01003. (413)545-2353.

Shade Tree Short Course, March 12-13. Iowa State University. Contact Laura Sweets, 111 Bessey Hall, Iowa State U., Ames, IA 50011. (515)294-1160.

Reinders Turf Conference, March 13-14. Waukesha Expo Center, Waukesha, WI. Contact Ed Devinger, Reinders Brothers, Inc., 13400 Watertown Plank Road, Elm Grove, WI 53122. (414) 786-3301.

Sportsturf Institute and Trade Show, March 19. Cal Poly University, Pomona, CA. Contact Dr. Kent W. Kurtz, Cal Poly University, 3801 W. Temple Ave., Pomona, CA 91768. (714)598-4167 or (714)598-4168.

Maine Winter Turf Conference, March 20-21. Merry Manor Inn, South Portland, ME. Contact Vaughn Holyoke, 413 Deering Hall, University of Maine, Orono, ME 04469. (207)581-2922.

ALCA Student Field Days, March 29-31. Mississippi State University. Contact Bob Callaway, Mississippi State University, P.O. Box MQ, Mississippi State, MS 39762.

Northeastern Pennsylvania Turfgrass & Grounds Maintenance School, Feb. 19-20, Nanticoke, PA. Contact William Kleiner, Luzerne Co. Ext. Service, 200 Adams Ave., Scranton, PA 18503, (707) 825-1701.

Western Pennsylvania Turf & Grounds Maintenance School & Trade Show, Feb. 26-28, Monroeville, PA. Contact Christine King, PO Box 417, Bellefonte, PA 16823, (814) 355-8010 or James Helbling, 965 Balmoral Dr., Pittsburgh, PA 15237, (412) 366-9018.

APRIL

26th Annual Turf & Landscape Institute. April 8-10, Anaheim, CA. Contact Ed McNeill, Southern California Turfgrass Council, 1000 Concha St., Altadena, CA 91001-9977, (818) 798-1715.

39th Annual Southeastern Turfgrass Conference, April 15-16, Tifton, GA. Contact Glenn W. Burton, Coastal Plain Experiment Station, Tifton, GA 31793, (912) 386-3353.

To insure that your event is included, please forward it, 90 days in advance, to: WEEDS TREES & TURF Events, 7500 Old Oak Boulevard, Cleveland, OH 44130.

STOP GRUBS FROM THE FIRST BITE TO THE LAST GASP.

Grubs are a hardy breed. They're tough to prevent and even tougher to get rid of once they start chowing down on the roots of your turf.

One thing that puts them off their feed is *OFTANOL 5% Granular insecticide.

Another is new OFTANOL 2 Insecticide. It's a liquid formulation of OFTANOL, containing two pounds of active ingredient per gallon.

The nifty thing about OFTANOL, liquid or granular, is that it stops grub damage fast, even before it kills. After an application of OFTANOL, grubs stop feeding and the damage stops. Use it as a preventive, in the spring, or as a curative anytime grubs are a problem.

Grubs, one serious problem with two serious solutions. OFTANOL. Always read the label before use.

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RATES: $1.00 per word (minimum charge, $25). Bold face words or words in all capital letters charged at $1.25 per word. Boxed or display ads: $85 per column inch-1x (one inch minimum); $80-3x; $75-6x; $70-12x. Agency commissions will be given only when camera-ready art is provided by agency. For ads using blind box number, add $5 to total cost of ad. Send ad copy with payment to Dawn Anderson, WEEDS TREES & TURF, 1 East First Street, Duluth, MN 55802.

BOX NUMBER REPLIES: Mail box number replies to: WEEDS TREES & TURF, Classified Ad Department, 120 W. 2nd St., Duluth, MN 55802. Please include box number in address.

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SOD FARM MANAGER:500 acre Chicago-area operation seeks qualified manager. Involves production, irrigation, and harvesting. Excellent salary and benefits. Send resume to WTT Box 354. 2/85

WANT TO BUY OR SELL a golf course? Exclusively golf course transactions and appraisals. Ask for our catalog. McKay Golf and Country Club Properties, 15485 N. East Street, Lansing, Michigan 48906. Phone (517) 484-7726. TF

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LAWN SEED. Wholesale. Full line of top quality grasses. Improved bluegrass varieties, fine fescues and fine bladed ryegrasses. We specialize in custom mixing. Oliger Seed Company, 2705 Wingate Avenue, Akron, OH 44314. Call collect (216) 753-2259. TF

TREE FERTILIZATION GUN, tested on over a million square feet of trees and shrubs all over the U.S. Good to 500 psi, repairable, non-corrosive. Buy direct from manufacturer, $95.50. ArborNomics, Inc., 5634-A Buford Highway, Atlanta, Georgia 30071. (404) 447-6037. TF

SALE--SALE--SALE--Hannay 12 VOLT REEL MOTORS, $100.00 (new) regular $160.00. FMC **JOHN BEAN** parts, sprayers, spray guns and pumps at **discounted** prices. **HYPRO** parts, pumps and accessories at **25% discount. HANNAY** reel swivel joints, reel switches, and solenoids at **discounted** prices. **TUFLEX** FIBERGLASS TANKS and replacement parts at **discounted** prices. **MEYERS** pumps and parts at **discounted** prices. **GREEN-GARDE** JD-9 spray guns and spray hose at **discounted** prices.**Call:** Strong Ent., Inc. **Collect** (305) 264-5525. 2/85

Used equipment for sale: 2 Jacobsen F-10 mowers ($5,000 & $7,000). 1 Roseman 7-gang mower, tow type, hydraulic powered with new motors ($5,000). 1 Jacobsen 5-gang ram lift ranger with fairway units ($2,000). 1 Roseman 5-gang ($1,000). 2 six-foot Lawn Genies ($1,000 each). 2 seven-foot Beck sweepers ($2,500 each). 1 five-foot Rogers sweeper ($500). 2 Jacobsen fairway mowing units ($400 each) plus spare parts. If interested call: (205) 821-0969. Beck's Turf-Nursery, P.O. Box 752, Auburn, AL 36830. 4/85

BALL BARRIER NETTING: Made of olefin fibers. 6 1/2 feet and 25 feet high. Strong and tough. Will not rust. Easy to handle. For Driving Ranges and Golf Courses. Keep golf balls from straying off-course. J.A. Cissel Mfg., Co., P.O. Box 339, Farmingdale, N.J. 07727. (800) 631-2234. 5/85

HYDRO-MULCHERS AND STRAW BLOWERS New and used. **JAMES LINCOLN CORPORATION,** 3220 S. Jupiter Rd., Garland, TX 75041. (214) 840-2440(TX), (800) 527-2304 (except TX) TF

NEW and USED EQUIPMENT — Asplundh, Hi Ranger and Lift-all forestry bucket trucks, Chipmore wood chippers. Mirk, Inc., (216) 669-3567, (216) 669-3562, 7629 Chippewa Road, Orrville, Ohio 44667. TF

Preco Distributors Wholesale Distributors of Replacement parts that fit **Bobcat, Bunton, Kees** and other mid-size walk behind mowers. Quality **Grass Catchers** control Handles; caster wheels, caster arms; caster yokes tires; spindles; bearing; bell cranks; blades and much more. Call or write for free catalog. 1-800-428-8004. In Mass. Call Collect 413-596-2996. 2/85

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Brush Chippers, Tree & Turf Sprayers, Bucket Trucks, Stump Grinders
For the Best Price, Service & Delivery
ESSCO **(516) 226-5104**

76 Ford F600-With 4 year Old Finn Lawn Sprayer-800 Gal. Excellent condition, $7,000. 75 Dodge 600-With 5 year old Finn Lawn Sprayer-800 Gal. Excellent condition, $6,000. 74 Ford F600-With 2 year old "Professional Turf" Lawn Sprayer-has split tanks (750 Gal. & 250 Gal.), $7,500. Pictures upon request. Call (616) 669-0500. 2/85

DOGWOODS—Cornus Florida - field grown 1 year; 6″ - 12″ — .17 ea.; 12″ - 18″ — .22 ea.; 18″ - 24″ — .35 ea. Discounts up to 30 percent based on dollar value. Call for free catalog. BECK'S NURSERY, Box 752-W1, Auburn, AL 36830, (205) 821-0969. 2/85

SEEDLINGS—Pines, Oaks, Maples, Dogwoods and many more. Quality products at low prices. Write or call for free catalog. BECK'S NURSERY, P. O. Box 752-W2, Auburn, AL 36831, (205) 821-0969. 2/85

Replacement **REELS** and **BED KNIVES** to fit **ALL** makes of reel mowers. These products are made in England from some of the highest qualities of steel in the world. Fully guaranteed and competitively priced. Contact: Mowing Machine Maintenance U.S.A., P. O. Box 1108, Andalusia, Alabama 36420, (205) 222-4181. 2/85

Spray Trucks—4 units 1977 Chev. C50 with 800 gl. tanks, hydraulic pump, reel and agitation system, ready to spray, $5,000 each. 1 unit 1977 Ford F-750 with 1,500 gl. tank, Bean 20-20 pump, 2 Hannay electric reels, ready to spray, $10,000. Call 401-737-4611. 3/85

1983 Sprayer on flatbed trailer. FMC 1010 10 gpm, 7 HP Kohler, 200 gallon steel tank, Hannay electric reel with hose. Very Good Condition. $2500. 217-359-7012. 3/85

HYDRO AX ROTARY MOWERS MODEL 520 Completely rebuilt to factory specs W.A. KENDALL AND COMPANY INC., P. O. Box 831 Lawrenceville, Georgia 30246. 404-963-6017 2/85

Spray Truck—Heavy Duty 1500 Gallon 3 Compartment Spray Truck with stainless steel tank mounted on 1983 International Diesel S-1754; ideal for turf, tree and shrub spraying; low mileage; low use; practically new. Call Brendan Hoarty Tree & Landscape Service, Inc.: (617) 783-4721. 2/85

For Sale: 1978 Princeton Tow Boy Harvester. 20 inch machine, excellent condition, lots of new parts. $9,000. 609-451-0424. 2/85

BROUWER SOD HARVESTER 1974, Model A3, with M-F 135 tractor. Good running condition. $12,000.00. Jade Run Sod Farm. (609) 859-2400. 2/85

HELP WANTED

LANDSCAPE MAINTENANCE FOREMAN. Permanent year 'round position for hardworking, knowledgeable, motivated individual to work with 2 men crew to maintain extensively landscaped 3 acre apartment complex, winner of the 1984 Professional Ground Maintenance Award of the Professional Ground Maintenance Society. Applicant must be thoroughly familiar with all phases of landscaping, waterscaping and sprinkler system design and maintenance. Good supervisory capabilities are a must. Send resume, references and design portfolio to Alikar Gardens, c/o K. Finzel, 20 Broadmoor Ave. Colo. Springs, Colo. 80906. 2/85

Landscape Maintenance Foreman and Manager. Large Multifamily Developer is in search of hard working, aggressive, and self motivating individual to run 3 to 4 person lawn maintenance crew. Must be capable of physically working with crew as well as managing people. B.S. in horticulture and 3 years practical experience is required. Must have thorough knowledge of pruning, pest control, fertilization, turf grass maintenance and small equipment maintenance. Full time position available in Cincinnati area. Send resume and salary requirements to: Kevin Showe, Showe Realty Co., 1225 Dublin Road, Columbus, Ohio 43215. 2/85

LANDSCAPE INSTALLATION AND MAINTENANCE SALES-COMMERCIAL Well established, aggressive Washington Metro. Firm is searching for the best individuals to expand its Sales and Marketing Department. Applicants must be experienced in product knowledge as well as professional sales and service technique. Excellent salary, All resumes confidential. Advancement unlimited. Write: P.O. Box 22022, Alexandria, Virginia 22304

LANDSCAPE FIELD SUPERVISOR - Must have knowledge of landscape and irrigation construction, blueprints, plant material and landscape equipment. A stable self-starter, with the ability to supervise men, is desired. The position is a year-round job, with fringe benefits and bonus opportunities. Salary will commensurate with experience and credentials. Send resume and salary requirements to: Alpine Gardens, 1958 Balsam Avenue, Greeley, CO 80631. 2/85

LANDSCAPE MAINTENANCE AREA MANAGER-Established Washington, DC landscape company seeks aggressive person to oversee area production and quality in our expanding maintenance division. Degree in landscape maintenance and/or related field, and experience necessary. Advancement opportunity and excellent company benefits. Please send resume to WTT Box 348. 2/85

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Circle No. 149 on Reader Inquiry Card

Person experienced in Sod growing operation to take responsibility of growing 800 acre production in Southern Ontario, Canada. Must be mechanically inclined. **Second position:** person fully experienced to manage sod harvesting crews. Must be capable of repairing sod equipment. Mail resume with 3 previous employers and addresses and wages expected to: Bill Johnston, P.O. Box 6163, Station F. Hamilton, Ontario, Canada L9C 5S3. 2/85

Foreman/Crew leader/Climbers needed for our growing full line tree service. Full benefits, year 'round work for right person. Must have climbing ability. Long term employment potential with advancement possibilities. Metropolitan Chicago Area. Equal opportunity employer. Please send resume and salary requirements to: WTT Box 356. 2/85

Arborist wanted for sales, supervision, and diagnosis. Must have two years experience or related education to join our sales/management team. We are an aggressive, growth oriented full service Arborist company in the Chicago-land area. Full benefits, year 'round work for right person, profit sharing etc. Competitive salary with commission and bonus potential dependent upon experience and performance. Equal opportunity employer. Please send resume and salary history/requirements to: WTT Box 355. 2/85

ARBORIST FOREMAN - Challenging position for arborist who has extensive practical experience and minimum of ten years increasingly responsible supervisory experience. Foreman supervises crew of twelve caring for extensive tree collection on 1,000 acres. Salary range $23,000 to $28,900. Submit letter of application, resumé and 3 letters of recommendation to: Horticulturist, Longwood Gardens, Kennett Square, PA 19348. 2/85

IRRIGATION DIVISION MANAGER for a large New York area firm. Must be able to run service and construction crews. Good salary and benefits. Contact Mark E. Sosnowitz, **SPRINKLESCAPE, INC.**, P.O. Box 175, Glenville Station, Greenwich, CT 06830. 203-869-4149. 2/85

SOD FARM FOR SALE serving the booming Las Vegas area. Owner ready to retire. For further details write Nevada Turf Growers, Inc., 4295 S. Arville, Las Vegas, Nevada 89103. 2/85

USED EQUIPMENT

1979 TORO HTM 175. 7 gang hydraulic fairway mower, diesel. Only 3 northern seasons, 1,200 hours, reels ground, sharp, ready to go. $25,000 or offer. (313) 855-0700 2/85

BUCKET TRUCKS, straight stick, corner mount and knuckle boom cranes. Sprayers, chippers, dumps, stakes, log loaders, crew cab chip box dumps, railroad trucks. 50 in stock. Sold as is or reconditioned. Opdyke's, Hatfield (Philadelphia area). 215-721-4444. TF

For Sale — 1978 Princeton Sod Harvester, Model #4020, with John Deere diesel. Ready for work! Looks good — Runs Good! $17,500. Grass Farm, Morgan Hill, CA. (408) 226-9775. TF

HI-RANGERS AERIAL BASKETS 65', 57', and 53'. Skyworkers aerial baskets 65', 50', 40'. Vermeer stump cutter 1560,6. Vermeer tree spade 66, TS 44. Asplundh bucket and brush chippers, Bean sprayer, 9 ton trailer. Parkway Tree Service, 12026 W. Cherry, Wauwatosa, Wisc. 53226. (414) 257-1555. TF

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Two Tree Trimming Trucks w/Reach All triple boom articulating aerial device, dump box and chipper. Arrowhead Tree Service, P. O. Box 3280, Duluth, Minnesota 55803 (218) 724-7622. 3/85

WANTED

WANTED: Large Lindig and Royer Shredders. Lewis Equipment, 320 Third Street S.W., Winter Haven, FL 33880. (813) 294-5893. 2/85

Wanted to buy **HYDRO SEEDER**. Please send photo. Johnson Hydro Seeding Corp., 13751 Travilah Road, Rockville, MD 20850, 301/340-0805. TF

Wanted: Used Brouwer or Princeton sod harvester. Sauk Valley Turf, 4841 Hoover Rd., Deer Grove, IL 61243, (815) 438-3592. 2/85

POSITION WANTED

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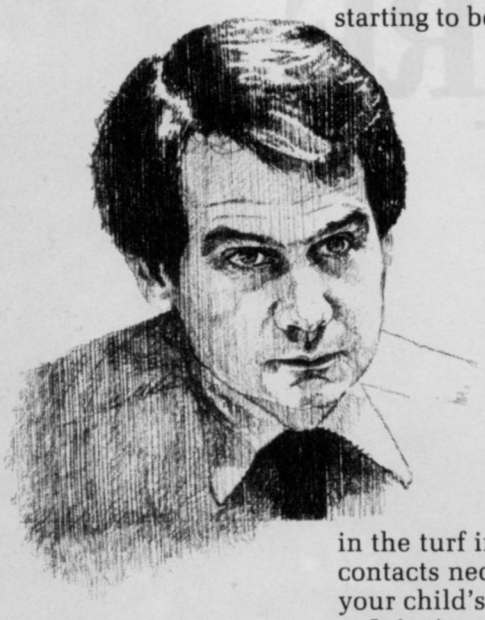
Circle No. 124 on Reader Inquiry Card

A Winning Combination

The PTA, Sports Field Managers, and You

For those who grew up playing stick ball on vacant lots, a request for funds to improve athletic fields may seem trivial. After all, pain is part of sports. The ability to withstand pain separates the men from the boys.

This macho myth is now being challenged and the value of sports fields is starting to be recognized.



People like me, who played high school and college sports on fields that could wreck a tank, resent the fact that our knees were shot for life at the age of 30.

We have kids beginning sports. We'd like to spare them the pain, the stitched-up knees, and the humiliation of worn out legs when they are middle-aged. We'd also like to spare ourselves the medical bills.

But, most of all, we'd like to see our kids reach their highest sports potential, something only possible on well-constructed, well-maintained fields rarely found today at schools and parks.

Two ways of reaching school and park decisionmakers are being tried. One way is through Parent Teachers Associations (PTAs) now being tried by an offshoot of the Lawn Institute headed by Eliot Roberts, (615) 277-3722. The second way is through managers of sports fields by the Sports Turf Managers Association headed by Kent Kurtz, (714) 598-4167.

There is a third way we should also try. I strongly urge everyone in the turf industries to find out more about their local fields and to make the contacts necessary to improve them. Sharing your expertise can actually save your child's legs.

It is time for a three-pronged attack on dangerous local sports fields to succeed.

Old specs and carpet salesmen

When the need for sports field improvement is recognized and supported, two more challenges arise, outdated field construction specifications and carpet salesmen.

Ironically, landscape architects, whose job it is to keep track of construction techniques, often have outdated design specifications in their files. You'll need the technical backing of the Sports Turf Managers Association to beat the old plans of architects.

Finally, carpet costs more and causes considerably more injuries than natural turf fields. This has been substantiated time and time again.

Bruce F. Shank

Bruce F. Shank, executive editor

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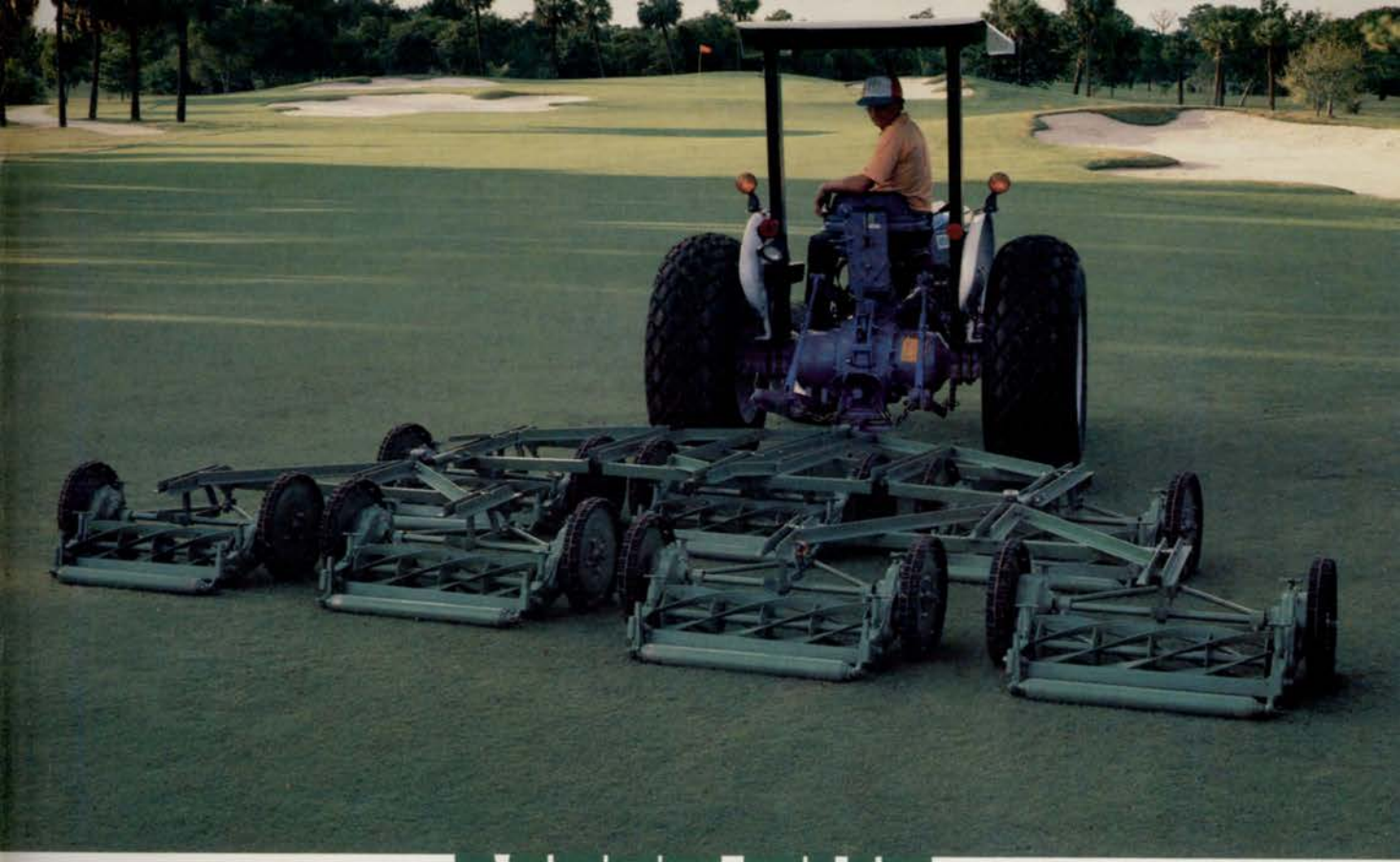

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LESCO proudly introduces the newest addition to its growing line of turf maintenance equipment – the LESCO Fairway Mower.

Using only the finest American-made steel and advanced manufacturing, heat treating and plating processes, LESCO builds in the quality needed to provide years of dependable service. The LESCO Fairway Mower features simple bedknife-to-reel adjustment, heavy-duty welds and precision-hobbed ductile iron gears.

To best suit your needs, LESCO offers its new fairway unit with a five, six or ten-blade reel. The mowers can be grouped on a five, seven or nine-gang frame – all available from LESCO. And because LESCO manufactures and sells direct to the user, there are no distributors or middlemen to increase costs.

Outstanding quality and performance make this new mower perfect for use on golf course fairways; park and recreational land; corporate and industrial sites; sod fields and other large turfgrass areas. Ease of operation, simple maintenance and economical mowing are just three of the many benefits you will realize with the LESCO Fairway Mower.

For years of beautiful mowing and reliable operation, choose the new gang in town. It won't let you down.

Our price is $895 for the six-blade unit . . . less wheels. Excellent pricing is also available on the five-blade and ten-blade models, the wheels and the frames.

For more information about this newest piece of equipment from LESCO, we invite you to contact your LESCO salesman or give us a call toll free. When you call, ask for Jeff Mack. He's our equipment product manager and can help answer any questions you might have.

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Check the latest university reports. North and South, Prelude has been taking high honors for overall turf performance in trials against other turf-type perennial ryes. Prelude consistently outperforms such popular varieties as Pennfine, Derby and Manhattan.

In fact, Prelude has performed so well that it's now recommended for use on PGA TOUR™ golf courses. And that's quite an endorsement, because Dennis Leger, PGA TOUR Agronomist, is one of the most demanding turfgrass specialists in the industry.

Whether you're establishing a new lawn, or overseeding existing turf, try Prelude perennial ryegrass. You'll get a thick, lush, dark green cover that establishes easily and quickly while standing up to heat, drought, and disease. If traffic is your concern, Prelude recovers quickly after being abused by golf carts, or the wear and tear of a football game. Prelude turf-type perennial ryegrass: a top performer for all uses.

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